INJECTION WELL COMPLETION REPORT FORM 7520-9--EAST CHERRY CREEK VALLEY WATER AND SANITATION DISTRICT WELL DI-1

Prepared for the Environmental Protection Agency

Prepared by Hydrokinetics, Inc. July 22, 2011









09/02/10



Technical Report for

Hydrokinetics

ECCV DI-1

WOLFCAMP

Accutest Job Number: D16918

Sampling Date: 08/30/10

Report to:

Hydrokinetics 12975 West 24th Place Golden, CO 80401 pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 11



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Jesse J. Smith Jesse L. Smith Laboratory Director

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

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Sample Summary

Hydrokinetics

ECCV DI-1 Project No: WOLFCAMP

Job No:

D16918

Sample			Matrix	Client
Number			Received Code Type	Sample ID
D16918-1	08/30/1	0 11:45 PO	08/30/10 AO Water	FCCV DL1 WOLFCAMP







CASE NARRATIVE / CONFORMANCE SUMMARY

Client:

Hydrokinetics

Job No

D16918

Site:

ECCV DI-1

Report Dat

9/2/2010 6:04:04 PM

On 08/30/2010, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 5.9 °C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D16918 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method ASTM D287

Matrix ALL

Batch ID: GN6153

The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method SM20 2510B

Matrix AQ

Batch ID: GP2683

Sample(s) D16918-1DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix AQ

Batch ID: GN6135

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16652-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.











Section 3



Report of Analysis



Page 1 of 1

Client Sample ID: ECCV DI-1 WOLFCAMP

Lab Sample ID: Matrix:

D16918-1

AQ - Water

Date Sampled: 08/30/10

Date Received: 08/30/10 Percent Solids: n/a

Project:

ECCV DI-1

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Solids, Total Dissolved Specific Conductivity Specific Gravity by Hydromete pH	17900 25900 21.0129 6.02	10 1.0	mg/l umhos/cm su	1 1 1	08/30/10 08/31/10 08/30/10 08/30/10 13:45	JD CJ JK	SM20 2540C SM20 2510B ASTM D287 SM20 4500H













Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody



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Surpay Field ID / Point of Collection ECCY DI-1 WOLFCAMP	MEQHIOLVIALD	8-30-10	11145	Sampled by POYO	Maria W	of bottless	HCI NAOH	HANCS H2SO4	NON S	MEOH ENCORE		x ·)- }-	X							LAB USE ONLY
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D16918: Chain of Custody

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General Chemistry



QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries



METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16918 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

nalyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP *Recov	QC Limits
olids, Total Dissolved	GN6135	10	0.0	mg/l	400	397	99.3	90-110%
pecific Conductivity	GP2683/GN6155			umhos/cm	99.9	90	90.0	90-110
H	GN6148			su	8.00	7.99	99.9	99.3-100.
H	GN6148			su	8.00	7.99	99.9	99.3-100

Associated Samples:
Batch GN6135: D16918-1
Batch GN6148: D16918-1
Batch GP2683: D16918-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16918 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits	
Solids, Total Dissolved Specific Conductivity	GN6135 GP2683/GN6155	D16652-1 D16918-1	mg/l umhos/cm	518 25900	526 25800	1.5	0-25% 0-20%	

Associated Samples: Batch GN6135: D16918-1 Batch GP2683: D16918-1 (*) Outside of QC limits











09/15/10

Technical Report for

Hydrokinetics

ECCV DI-1

WOLFCAMP, AMAZON/COUNCIL GROVE

Accutest Job Number: D16928

Sampling Dates: 08/26/10 - 08/30/10

Report to:

Hydrokinetics 12975 West 24th Place Golden, CO 80401 pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 37

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Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Jesse L. Smith Laboratory Director

1 of 37

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

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Sample Summary

Hydrokinetics

ECCV DI-1

Job No:

D16928

Sample Number	Collected Date Time By	Matrix Received Code Type	Client Sample ID
D16928-1	08/26/10 14:30 POB	08/30/10 AQ Water	DI-1 CG-AMAZON
D16928-1F	08/26/10 14:30 POB	08/30/10 AQ Water	DI-1 CG-AMAZON
D16928-2	08/30/10 11:45 POB	08/30/10 AQ Water	DI-1 WOLFCAMP
D16928-2F	08/30/10 11:45 POB	08/30/10 AQ Water	DI-1 WOLFCAMP





CASE NARRATIVE / CONFORMANCE SUMMARY

Client:

Hydrokinetics

Job No

D16928

Site:

ECCV DI-1

Report Dat

9/15/2010 10:12:28 AM

On 08/30/2010, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 20.1 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D16928 was assigned to the project. The lab sample IDs, client sample IDs, and dates of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method SW846 6010B

Matrix AQ

Batch ID: MP2796

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16898-1FMS, D16898-1FMSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Matrix AQ

Batch ID: MP2806

- All samples were digested within and analyzed the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16869-3MS, D16869-3MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Silicon are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Wet Chemistry By Method EPA 300/SW846 9056

Matrix AO

Batch ID: GP2699

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16940-2MS, D16940-2MSD were used as the QC samples for the Chloride, Nitrate as Nitrogen, Phosphate, Ortho analysis.
- D16928-1 and D16928-2 for Nitrogen, Nitrate, Phosphate, Ortho: Elevated detection limit due to matrix interference. The samples were analyzed outside the 48 hour holding time for Nitrate.

Matrix AQ

Batch ID: GP2701

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16579-2MS, D16579-2MSD were used as the QC samples for the Fluoride analysis.

Matrix AQ

Batch ID: GP2716

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16982-8MS, D16982-8MSD were used as the QC samples for the Chloride analysis.

Matrix AQ

Batch ID: GP2722

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16920-1MS, D16920-1MSD were used as the QC samples for the Fluoride analysis.

Wet Chemistry By Method SM20 2320B

Matrix AQ

Batch ID: GN6229

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix AO

Batch ID: GN6230

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SW846 6010B

Matrix AQ

Batch ID: R4217

- The data for SW846 6010B meets quality control requirements.
- Dissolved Silica: Calculated as: (Silicon x 2.139)

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

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Section 3



Sample Results		
Report of Analysis		



Page 1 of 1

Client Sample ID: DI-1 CG-AMAZON Lab Sample ID: D16928-1

Matrix:

Date Sampled: 08/26/10

AQ - Water

Date Received: 08/30/10

Percent Solids: n/a

Project:

ECCV DI-1

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium Calcium	1660 620000	33 1300	ug/l ug/l	1		09/08/10 JM 09/08/10 JM	SW846 6010B ¹ SW846 6010B ¹	SW846 3010A ³ SW846 3010A ³
Iron	216000	230	ug/l	1	09/07/10	09/08/10 јм	SW846 6010B ¹	SW846 3010A ³
Magnesium Manganese	123000 4470	670 17	ug/l ug/l	1		09/09/10 JM 09/08/10 JM	SW846 6010B ² SW846 6010B ¹	SW846 3010A ³ SW846 3010A ³
Potassium	574000	3300	ug/l	1	09/07/10	09/08/10 јм	SW846 6010B ¹	SW846 3010A ³
Sodium Strontium	5120000 11100	13000 17	ug/l ug/l	10 1		09/09/10 JM 09/08/10 JM	SW846 6010B ² SW846 6010B ¹	SW846 3010A ³ SW846 3010A ³

Instrument QC Batch: MA958
 Instrument QC Batch: MA962
 Prep QC Batch: MP2796

Page 1 of 1

Client Sample ID: DI-1 CG-AMAZON

Lab Sample ID: Matrix: D16928-1 AQ - Water

Date Sample

Date Sampled: 08/26/10

Date Received: 08/30/10 Percent Solids: n/a

Project:

ECCV DI-1

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Alkalinity, Bicarbonate as Ca	C 1270	5.0	mg/l	1	09/03/10	CJ	SM20 2320B
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	09/03/10	CJ	SM20 2320B
Chloride	6380	250	mg/l	500	09/01/10 21:39	JML	EPA 300/SW846 9056
Fluoride	262	20	mg/l	100	09/03/10 15:56	GH	EPA 300/SW846 9056
Nitrogen, Nitrate ^a	< 1.1	1.1	mg/l	25	08/31/10 11:55	JML	EPA 300/SW846 9056
Phosphate, Ortho b	< 1.6	1.6	mg/l	25	08/31/10 11:55	JML	EPA 300/SW846 9056
Sulfate	2060	50	mg/l	100	08/31/10 21:05	JML	EPA 300/SW846 9056

⁽a) Elevated detection limit due to matrix interference. This sample was analyzed outside the 48 hour holding time for Nitrate.

⁽b) Elevated detection limit due to matrix interference. This sample was analyzed outside the 48 hour holding time for Phosphate.

Page 1 of 1

Client Sample ID: DI-1 CG-AMAZON

Lab Sample ID: Matrix:

D16928-1F

AQ - Water

Date Sampled: 08/26/10

Date Received: 08/30/10

Percent Solids: n/a

Project:

ECCV DI-1

Total Metals Analysis

Analyte Result

RL

Units DF

Prep

Analyzed By

Method

Prep Method

Silicon

61700

50

ug/l

 $09/08/10 \ 09/10/10 \ JM$

SW846 6010B ¹

SW846 3010A ²

(1) Instrument QC Batch: MA967 (2) Prep QC Batch: MP2806

RL = Reporting Limit

Page 1 of 1

Client Sample ID: DI-1 CG-AMAZON

Lab Sample ID: Matrix:

D16928-1F

AQ - Water

Date Sampled: 08/26/10

Date Received: 08/30/10 Percent Solids: n/a

Project:

ECCV DI-1

General Chemistry

Analyte Result RL

Units DF Analyzed

Method

Silica, Dissolved a

132

0.11

mg/l

1

09/10/10 16:51 JM

SW846 6010B

(a) Calculated as: (Silicon * 2.139)

Page 1 of 1

Client Sample ID: DI-1 WOLFCAMP

Lab Sample ID: Matrix:

D16928-2

AQ - Water

Date Sampled: 08/30/10

Date Received: 08/30/10

Project:

ECCV DI-1

Percent Solids: n/a

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	807	10	ug/l	1	09/07/10	09/08/10 јм	SW846 6010B ¹	SW846 3010A ³
Calcium	118000	400	ug/l	1	09/07/10	09/08/10 јм	SW846 6010B ¹	SW846 3010A ³
Iron	40000	70	ug/l	1	09/07/10	09/08/10 JM	SW846 6010B 1	SW846 3010A ³
Magnesium	12700	200	ug/l	1	09/07/10	09/09/10 јм	SW846 6010B 2	SW846 3010A ³
Manganese	4140	5.0	ug/l	1	09/07/10	09/08/10 JM	SW846 6010B 1	SW846 3010A ³
Potassium	8130000	10000	ug/l	10	09/07/10	09/09/10 JM	SW846 6010B ²	SW846 3010A ³
Sodium	248000	4000	ug/l	10	09/07/10	09/09/10 IM	SW846 6010B 2	SW846 3010A ³
Strontium	2100	5.0	ug/l	1	09/07/10	09/08/10 JM	SW846 6010B ¹	SW846 3010A ³

(1) Instrument QC Batch: MA958(2) Instrument QC Batch: MA962 (3) Prep QC Batch: MP2796

Page 1 of 1

Client Sample ID: DI-1 WOLFCAMP

Lab Sample ID: Matrix:

D16928-2 AQ - Water Date Sampled:

08/30/10

Date Received: 08/30/10 Percent Solids: n/a

Project:

ECCV DI-1

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Alkalinity, Bicarbonate as CaC Alkalinity, Carbonate Chloride Fluoride Nitrogen, Nitrate ^a Phosphate, Ortho ^b Sulfate	<pre>C 15.0 < 5.0 8770 4.9 < 0.90 < 1.3 356</pre>	5.0 5.0 250 4.0 0.90 1.3	mg/l mg/l mg/l mg/l mg/l mg/l	1 1 500 20 20 20 20	09/03/10 09/03/10 08/31/10 21:36 08/31/10 12:57 08/31/10 12:11 08/31/10 12:11	GH JML JML	SM20 2320B SM20 2320B EPA 300/SW846 9056 EPA 300/SW846 9056 EPA 300/SW846 9056 EPA 300/SW846 9056 EPA 300/SW846 9056

⁽a) Elevated detection limit due to matrix interference. This sample was analyzed outside the 48 hour holding time for Nitrate.

⁽b) Elevated detection limit due to matrix interference. This sample was analyzed outside the 48 hour holding time for Phosphate.

Page 1 of 1

Client Sample ID: DI-1 WOLFCAMP

Lab Sample ID: Matrix:

D16928-2F

AQ - Water

Date Sampled: 08/30/10

Date Received: 08/30/10 Percent Solids: n/a

Project:

ECCV DI-1

Total Metals Analysis

Analyte RLResult Units DF Prep Analyzed By Method Prep Method

Silicon

290

50

ug/l

09/08/10 09/10/10 JM

SW846 6010B ¹

SW846 3010A ²

(1) Instrument QC Batch: MA967 (2) Prep QC Batch: MP2806

Page 1 of 1

Client Sample ID: DI-1 WOLFCAMP

Lab Sample ID: Matrix:

D16928-2F AQ - Water

Date Sampled: 08/30/10 Date Received: 08/30/10

Project:

ECCV DI-1

Percent Solids: n/a

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Silica, Dissolved a	0.62	0.11	mg/l	1	09/10/10 17:01	JM	SW846 6010B

(a) Calculated as: (Silicon * 2.139)











M	lisc.	Forms	
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Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody



Boille Order Control #		
Accuracy Job #		
EST CODE sheet)	Die	Matrix Codes
		DW Dirthing Water GW Ground Water GW Ground Water SW Surface Water SO Sold SE Sudge SED Secretar OI O'2 LO Other Liquid AIR Air SOL - Other Sold WP Woo FB Field Blank FB- Brinse Blank TB-Trp Blank
		LAB USE ONLY
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D16928: Chain of Custody

Page 1 of 1











Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2796 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

09/07/10

Metal	RL	IDF	MDL	MB raw	final	_		
Aluminum	100	7	49			-	 · · · · · · · · · · · · · · · · · · ·	
Antimony	30	1.7	13					
Arsenic	25	2.8	6.5					
Barium	10	.14	2.4	0.20	<10			
Beryllium	10	1.4	4.4					
Boron	50	3.5	19					
Cadmium	10	.22	1.2					
Calcium	400	17	9.2	25.4	< 400			
Chromium	10	.27	1.6					
Cobalt	5.0	.48	. 3					
Copper	5.0	1.6	2.7					
Iron	70	7.7	10	8.2	<70			
Lead	50	1.3	3.2					
Lithium	2.0	,76	1.6					
Magnesium	200	5.8	12	7.0	<200			
Manganese	5.0	.21	.7	0.30	<5.0			
Molybdenum	10	.41	1.2					
Nickel	30	.38	.6					
Phosphorus	100	15	54					
Potassium	1000	380	540	140	<1000			
Selenium	50	2.8	7.2					
Silicon	50	12	20					
Silver	30	. 98	. 3					
Sodium	400	230	23	107	< 400			
Strontium	5.0	.091	3.4	0.0	<5.0			
Thallium	10	3.1	2.1					
Tin	50	14	4.4					
Titanium	10	.098	.7					
Uranium	50	2.2	3.9					
Vanadium	10	. 27	. 3					
Zinc								

Associated samples MP2796: D16928-1, D16928-2

Results < 1DL are shown as zero for calculation purposes (*) Outside of QC limits



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2796 Matrix Type: AQUEOUS

Methods: SW846 6010B Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2796 Matrix Type: AQUEOUS Methods: SW846 6010B

Units: ug/l

Prep Date:

09/07/10

Metal	D16898- Origina		Spikelo MPICPAL		QC
Aluminum	Origina	11. 1/10	METCEAL	L & Rec	Limits
Antimony					
Arsenic	anr				
Barium	7.5	1990	2000	99.1	75-125
Beryllium				*****	, 5 125
Boron					
Cadmium	anr				
Calcium	12700	36600	25000	95.6	75-125
Chromium	anr				
Cobalt					
Copper	anr				
Iron	8.5	4610	5000	92.0	75-125
Lead	anr				
Lithium					
Magnesium	2450	26000	25000	94.2	75-125
Manganese	26.4	499	500	94.5	75-125
Molybdenum					
Nickel					
Phosphorus					
Potassium	2170	27800	25000	102.5	75-125
Selenium	anr				
Silicon					
Silver	anr				
Sodium	297000	330000	25000	132.0(a)	75-125
Strontium	330	857	500	105.4	75-125
Thallium					
Tin					
Titanium					
Uranium					
/anadium					
linc	anr				
Associated sam	ples MP27	96: D1692	28-1, D1692	8-2	

Results < IDL are shown as zero for calculation purposes ($\dot{\bullet}$) Outside of QC limits

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2796 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/1

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.



Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2796 Matrix Type: AQUEOUS

Methods: SW846 6010B Units: ug/l

Prep Date:

09/07/10

					03707,	+ 4		
Metal	D16898 Origin	-1F al MSD	Spikel MPICPA	ot LL % Rec	MSD RPD	QC Limit		
Aluminum					· · · · · · · · · · · · · · · · · · ·			
Antimony								
Arsenic	anr							
Barium	7.5	2000	2000	99.6	0.5	20		
Beryllium								
Boron								
Cadmlum	anr							
Calcium	12700	36600	25000	95.6	0.0	20		
Chromium	anr							
Cobalt								
Copper	anr							
Iron	8.5	4620	5000	92.2	0.2	20		
Lead	anr							
Lithium								
Magnesium	2450	25300	25000	91.4	2.7	20		
Manganese	26.4	506	500	95.9	1.4	20		
Molybdenum								
Nickel								
Phosphorus								
Potassium	2170	27900	25000	102.9	0.4	20		
Selenium	anr							
Silicon								
Silver	anr							
Sodium	297000	310000	25000	52.0 (a)	6.3	20		
Strontium	330	847	500	103.4	1.2	20		
Thallium								
in								
itanium								
Iranium								
anadium								
inc	anr							
ssociated sam	ples MP27	96: D1692	8-1, D169	28-2				

Results < IDL are shown as zero for calculation purposes () Outside of QC limits

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2796 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits

(an) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2796 Matrix Type: AQUEOUS Methods: SW846 6010B

Units: ug/l

Prep Date:

09/07/10

Metal	BSP Result	Spikelot MPICPALL		QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	2020	2000	101.0	80-120
Beryllium				
Boron				
Cadmium	anr			
Calcium	24200	25000	96.8	80-120
Chromium	anr			
Cobalt				
Copper	anr			
Iron	4660	5000	93.2	80-120
Lead	anr			
Lithium				
Magnesium	23700	25000	94.8	80-120
Manganese	485	500	97.0	80-120
Molybdenum				
Nickel				
Phosphorus				
Potassium	25500	25000	102.0	80-120
Selenium	anr			
Silicon				
Silver	anr			
Sodium	25500	25000	102.0	80-120
Strontium	529	500	105.8	80-120
Thalllum				
Tin				
Titanium				
Uranium				
Uranium Vanadium				
	anr			



Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2796 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2806 Matrix Type: AQUEOUS Methods: SW846 6010B

Units: ug/l

Prep Date:

09/08/10

Metal	RL	IDL	MDL	MB raw	final			
Aluminum	100	7	49					
Antimony	30	1.7	13					
Arsenic	25	2,8	6.5					
Barium	10	.14	2.4					
Beryllium	10	1.4	4.4					
Boron	50	3.5	19					
Cadmium	10	.22	1.2					
Calcium	400	17	9.2					
Chromium	10	.27	1.6					
Cobalt	5.0	.48	. 3					
Copper	5.0	1.6	2.7					
Iron	70	7.7	10					
Lead	50	1.3	3.2					
Lithium	2.0	.76	1.6					
Magneslum	200	5.8	12					
Manganese	5.0	.21	. 7					
Molybdenum	10	.41	1.2					
Nickel	30	.38	.6					
Phosphorus	100	15	54					
Potassium	1000	380	540					
Selenium	50	2.8	7.2					
Silicon	50	12	20	16.4	< 50			
Silver	30	.98	. 3					
Sodium	400	230	23					
Strontium	5.0	.091	3,4					
Thallium	10	3.1	2.1					
Tin	50	1.1	4.4					
Titanium	10	.098	.7					
Uranium	5.0	2.2	3.9					
Vanadium	10	.27	.3					
Zinc	30	.76	1.7					

Associated samples MP2806: D16928-1F, D16928-2F

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits



BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2806 Matrix Type: AQUEOUS

Methods: SW846 6010B Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested



Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2806 Matrix Type: AQUEOUS

Methods: SW846 6010B Units: ug/l

Prep Date:

09/08/10

Metal	D16869-3 Original MS	Spikelot MPICPALL & Rec	QC Limits	
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
fron	anr			
Lead	anr			
Lithium	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium	anr			
Selenium	anr			
Silicon	7470 8970	1000 131.0(a)	75-125	
Silver	anr			
Sodium	anr			
Strontium	anr			
Thallium				
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc				
	ples MP2806: D169			
Results < IDL (*) Outside of	are shown as zero QC limits	for calculation pu	rposes	



Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2806 Matrix Type: AQUEOUS

Methods: SW846 6010B Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.



Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2806 Matrix Type: AQUEOUS

Methods: SW846 6010B

Units: ug/l

Prep Date:

09/08/10

Metal	D16869-3 Original MSD	Spikelot MPICPALL % Rec	MSD RPD	QC Limit	
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Boron	anr				
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt	anr				
Copper	anr				
Iron	anr				
Lead	anr				
Lithium	anr				
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	anr				
Phosphorus					
Potassium	anr				
Selenium	anr				
Silicon	7470 9550	1000 189.0 (a	1) 6.3	20	
Silver	anr				
Sodium	anr				
Strontium	anr				
Thallium					
Tin					
Titanium					
Uranium	anr				
Vanadium					
Zinc	anr				
Associated sa	mples MP2806: D16	928-1F, D16928-2F			
Results < IDI	are shown as zer f QC limits	o for calculation p	urposes		



Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2806 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2806 Matrix Type: AQUEOUS

Methods: SW846 6010B

Units: ug/l

Prep Date:

09/08/10

Metal	BSP Result	Spikelot MPICPALL Rec	QC Līmits
Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Boron	anr		
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	anr		
Lithium	anr		
Magnesium	anr		
Manganese	anr		
Molybdenum	anr		
Nickel	anr		
Phosphorus			
Potassium	anr		
Selenium	anr		
Silicon	1020	1000 102.0	80-120
Silver	anr		
Sodium	anr		
Strontium	anr		
Thallium			
Tin			
Titanium			
Granium	anr		
Vanadium			
Zinc	anr		
Associated sa	mples MP2	806: D16928-1F, D1	16928-2F
Results < IDL (*) Outside o	are shows	n as zero for calc	culation purposes

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2806 Matrix Type: AQUEOUS Methods: SW846 6010B Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

2.3









General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries





METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Bicarbonate as	CaC GN6229	5.0	2.6	mg/l	100	99.4	99.4	90-110
Alkalinity, Carbonate	GN6230	5.0	0.0	mg/l	100	99.4	99.4	80-120
Bromide	GP2716/GN6220	0.20	0.0	mg/l	20	19.1	95.5	90-110
Chioride	GP2699/GN6179	0.50	0.0	mg/l	20	21.1	105.5	90-110
Chloride	GP2701/GN6184	0.50	0.0	mg/l	20	18.5	92.5	90-1101
Chloride	GP2716/GN6220	0.50	0.17	mg/l	20	21.0	105.0	90-110
Chloride	GP2722/GN6264	0.50	0.0	mg/l	20	19.1	95.5	90-110
Fluoride	GP2701/GN6184	0.20	0.0	mg/l	10	9.50	95.0	90-110
Fluoride	GP2722/GN6264	0.20	0.0	mg/l	10	9.38	93.8	90-110
Nitrogen, Nitrate	GP2699/GN6179	0.045	0.0	mg/l	4.52	4.33	95.8	90-110
Nitrogen, Nitrate	GP2716/GN6220	0.045	0.0	mg/l	4.52	4.27	94.5	90-110
Nitrogen, Nitrite	GP2699/GN6179	0.061	0.0	mg/l	6.09	6.02	98.9	90-110
Jitrogen, Nitrite	GP2716/GN6220	0.061	0.0	mg/1	6.09	5.98	98.2	90-110
hosphate, Ortho	GP2699/GN6179	0.065	0.0	mg/l	9.78	9.29	95.0	90-1109
hosphate, Ortho	GP2716/GN6220	0.065	0.0	mg/l	9.78	9.26	94.7	90-110
Sulfate	GP2699/GN6179	0.50	0.0	mg/l	30	29.4	98.0	90-110
Sulfate	GP2701/GN6184	0.50	0.26	mg/l	30	29.1	97.0	90-110
Sulfate	GP2716/GN6220	0.50	0.0	mg/1	30	29.1	97.0	90-1109
Sulfate	GP2722/GN6264	0.50	0.0	mg/1	30	29.2	97.3	90-110

Associated Samples:
Batch GN6229: D16928-1, D16928-2
Batch GN6230: D16928-1, D16928-2
Batch GP2699: D16928-1, D16928-2
Batch GP2701: D16928-2
Batch GP2716: D16928-1
Batch GP2722: D16928-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	Rec	QC Limits
Bromide	GP2716/GN6220	D16982-8	mg/l	0.0	2.5	2.5	100.0	80-120%
Chloride	GP2699/GN6179	D16940-2	mg/1	84.8	100	188	103.2	80-120
Chloride	GP2701/GN6184	D16579-2	mg/l	147	50	202	110.0	80-1205
Chloride	GP2716/GN6220	D16982-8	mg/1	7.9	10	18.7	108.0	80-120
Chloride	GP2722/GN6264	D16920-1	mg/l	13.6	10	24.1	105.0	80-120
Fluoride	GP2701/GN6184	D16579-2	mg/l	0.55	12.5	11.9	90.8	80-1201
Fluoride	GP2722/GN6264	D16920-1	mq/1	0.40	2.5	2.8	96.0	80-1209
Nitrogen, Nitrate	GP2699/GN6179	D16940-2	mg/l	4.3	5.65	9.9	99.1	80-1209
Nitrogen, Nitrate	GP2716/GN6220	D16982-8	mg/l	0.085	0.565	0.65	100.0	80-120
Nitrogen, Nitrite	GP2699/GN6179	D16940-2	mg/l	0.0	3.05	3.0	98.5	80-1209
Nitrogen, Nitrite	GP2699/GN6179	D16940-2	mg/l	0.0	3.05	3.0	98.5	80-120%
Nitrogen, Nitrite	GP2716/GN6220	D16982-8	mg/l	0.0	0.305	0.31	101.8	80-120%
Phosphate, Ortho	GP2699/GN6179	D16940-2	mg/l	0.0	8.15	7.1	87.1	80-120
Phosphate, Ortho	GP2699/GN6179	D16940-2	mg/l	0.0	8.15	7.1	87.1	80-120%
Phosphate, Ortho	GP2716/GN6220	D16982-8	mg/l	0.0	0.815	0.78	95.7	80-120
Sulfate	GP2701/GN6184	D16579-2	mg/1	97.8	50	150	104.4	80-120%
Sulfate	GP2716/GN6220	D16982-8	mg/l	12.9	10	24.0	111.0	80-120
Sulfate	GP2722/GN6264	D16920-1	mq/l	42.4	10	51.9	95.0	80-120%

Associated Samples:
Batch GP2699: D16928-1, D16928-2
Batch GP2701: D16928-2
Batch GP2716: D16928-1
Batch GP2722: D16928-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

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MATRIX SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16928 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP2716/GN6220	D16982-8	mg/l	0.0	2.5	2.5	0.0	20%
Chloride	GP2699/GN6179 -	D16940-2	mg/1	84.8	100	185	1.6	20 ±
Chloride	GP2701/GN6184	D16579-2	mg/1	147	50	200	1.0	20%
Chloride	GP2716/GN6220	D16982-8	mg/1	7.9	10	18.4	1.6	20%
Chloride	GP2722/GN6264	D16920-1	mg/1	13.6	10	24.1	0.0	20*
Fluoride	GP2701/GN6184	D16579-2	mg/l	0.55	12.5	12.1	1.7	20%
Fluoride	GP2722/GN6264	D16920-1	mg/l	0.40	2.5	2.8	0.0	20%
Nitrogen, Nitrate	GP2699/GN6179	D16940-2	mg/1	4.3	5.65	9.7	2.0	20%
Nitrogen, Nitrate	GP2716/GN6220	D16982-8	mg/l	0.085	0.565	0.64	1.6	20%
Nitrogen, Nitrite	GP2699/GN6179	D16940-2	mg/1	0.0	3.05	2.7	10.5	20%
Nitrogen, Nitrite	GP2699/GN6179	D16940-2	mg/l	0.0	3.05	2.7	10.5	20+
Nitrogen, Nitrite	GP2716/GN6220	D16982-8	mg/l	0.0	0.305	0.30	3.3	20%
Phosphate, Ortho	GP2699/GN6179	D16940-2	mg/l	0.0	8.15	7.0	1.4	201
Phosphate, Ortho	GP2699/GN6179	D16940-2	mg/1	0.0	8.15	7.0	1.4	20 t
Phosphate, Ortho	GP2716/GN6220	D16982-8	mg/l	0.0	0.815	0.77	1.3	20%
Sulfate	GP2701/GN6184	D16579-2	mg/l	97.8	50	150	0.0	20%
Sulfate	GP2716/GN6220	D16982-8	mg/l	12.9	10	23.6	1.7	20%
Sulfate	GP2722/GN6264	D16920-1	mg/l	42.4	10	51.7	0.4	20%



Associated Samples:
Batch GP2699: D16928-1, D16928-2
Batch GP2701: D16928-2
Batch GP2716: D16928-1
Batch GP2722: D16928-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits



INJECTION WELL COMPLETION REPORT FORM 7520-9--EAST CHERRY CREEK VALLEY WATER AND SANITATION DISTRICT WELL DI-1

Prepared for the Environmental Protection Agency

Prepared by Hydrokinetics, Inc. July 22, 2011









09/01/10



Technical Report for

Hydrokinetics

ECCV DI-1 AMAZON/COUNCIL GROVE

Accutest Job Number: D16880

Sampling Date: 08/26/10

Report to:

Hydrokinetics 12975 West 24th Place Golden, CO 80401 pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 12



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Jesse L. Smith
Laboratory Director

Jesse & Snich

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Test results relate only to samples analyzed.



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Sample Summary

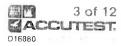
Hydrokinetics

ECCV DI-1

Job No:

D16880

Sample Number	Collected Date	Time By	Received	Matrix Code Type	Client Sample ID
D16880-1	08/26/10	14:30 PO	08/27/10	AQ Water	DI-1 CG-AMAZON





CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Hydrokinetics Job No

D16880

Site:

ECCV DI-1

Report Dat

9/1/2010 5:41:03 PM

On 08/27/2010, I sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D16880 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method ASTM D287

Matrix ALL

Batch ID: GN6153

The data for ASTM D287 meets quality control requirements

Wet Chemistry By Method SM20 2510B

Matrix AQ

Batch ID: GP2683

Sample(s) D16918-1DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix AQ

Batch ID: GN6135

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D16652-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.













Report of Analysis



Report of Analysis

Page 1 of 1

Client Sample ID: DI-1 CG-AMAZON

Lab Sample ID:

D16880-1

Matrix:

AQ - Water

Date Sampled:

08/26/10

Date Received: 08/27/10 Percent Solids: n/a

Project:

ECCV DI-1

General Chemistry

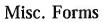
Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Solids, Total Dissolved	15800	10	mg/l	1	08/30/10 08/31/10	JD	SM20 2540C SM20 2510B
Specific Conductivity	21100	1.0	umhos/cm	1		CJ	
Specific Gravity by Hydrometer	e 1.0129			1	08/30/10	CJ	ASTM D287
pH	6.47		su	1	08/27/10 14:45	JD	SM20 4500H











Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody





Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D16880 Client: HYDROKII	NETKS	Immediate Client Service	s Actio	n Required	: No
Date / Time Received: 8/27/2010 11:13:00 AM No. Co	oolers:	1 Client Service Action	Requir	ed at Login	: No
Project: ECCV DI-1		Airbill #'s: hd			
Cooler Security 1 Custody Seals Present: 2 Custody Seals Intact: 2 Custody Seals Intact: 2 Custody Seals Intact: 2 Custody Seals Intact: 3 COC Present: 4 Smpl Dates/Time OK	<u>Y or N</u> ☑ □ ☑ □	Sample Integrity - Documentation 1 Sample labels present on bottles 2. Container labeling complete:	Y		
Cooler Temperature 1 Temp criteria achieved 2 Cooler temp verification: 3 Cooler media: Coole		3. Sample container label / COC agree: Sample Integrity - Condition 1. Sample recvd within HT; 2. All containers accounted for: 3. Condition of sample.	Y V	or N	
1 Trip Blank present / cooler		Sample Integrity - Instructions 1. Analysis requested is clear: 2. Bottles received for unspecified tests 3. Sufficient volume rec'd for analysis:	Y	or N	N/A
Comments		4. Compositing instructions clear: 5. Filtering instructions clear:			y
Comments					
Accutest Laboratories V (303) 425-6021		ngfield Street 425-6854		Ridge, CO accutest.com	

D16880: Chain of Custody

Page 2 of 2













General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries





METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16880 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	ŔĹ	MB Result	Units	Spike Amount	BSP Result	BSP *Recov	QC Limits
Solids, Total Dissolved	GN6135	10	0.0	mg/l	400	397	99.3	90-1101
Specific Conductivity	GP2683/GN6155			umhos/cm	99.9	90	90.0	90-2109
Н	GN6122			su	8.00	7.98	99.8	99.3-10
oН	GN6122			su	8.00	7.98	99.8	99.3-1

Associated Samples: Batch GN6122: D16880-1 Batch GN6135: D16880-1 Batch GP2683: D16880-1 (*) Outside of QC limits

DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16880 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN6135	D16652-1	mg/l	518	526	1.5	0-25%
Specific Conductivity	GP2683/GN6155	D16918-1	umhos/cm	25900	25800		0-20%

Associated Samples: Eatch GN6135: D16880-1 Batch GP2683: D16880-1 (*) Outside of QC limits











08/25/10



Technical Report for

Hydrokinetics

ECCV DI-1 MISSOURIAN

Accutest Job Number: D16627

Sampling Date: 08/22/10

Report to:

Hydrokinetics 12975 West 24th Place Golden, CO 80401 pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 11



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

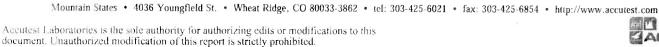
Jesse L. Smith Laboratory Director

Jesse & Smith

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

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5.1: Method Blank and Spike Results Summary	10
5.2: Duplicate Results Summary	













Sample Summary

Hydrokinetics

ECCV DI-1

Job No:

D16627

Sample Number	Collected Date	Time By	Received	Matrix Code Type	Client Sample ID
D16627-1	08/22/10	14:40 PO	08/23/10	AQ Water	DI-1 MISSOURIAN





CASE NARRATIVE / CONFORMANCE SUMMARY

Client:

Hydrokinetics

Job No

D16627

Site:

ECCV DI-I

Report Dat

8/25/2010 5:16:32 PM

On 08/23/2010, one (1) sample, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 3.8°C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D16627 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method ASTM D287

Matrix ALL

Batch ID: GN6050

The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method SM20 2510B

Matrix AQ

Batch ID: GP2631

Sample D16627-1DUP was used as the QC sample for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix AQ

Batch ID: GN6058

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample D16627-1DUP was used as the QC samples for the Total Dissolved Solids analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

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Sample	Results
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Report of Analysis

Report of Analysis

Page 1 of 1

Client Sample ID: DI-1 MISSOURIAN Lab Sample ID: D16627-1

Matrix:

AQ - Water

Date Sampled: 08/22/10 Date Received: 08/23/10

Percent Solids: n/a

Project:

ECCV DI-1

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Solids, Total Dissolved Specific Conductivity	21000 3090	10 1.0	mg/l umhos/cm	1 1	08/25/10 08/24/10	CJ CI	SM20 2540C SM20 2510B
Specific Gravity by Hydromete	e 1.0143			1	08/24/10	CJ	ASTM D287
pН	7.74		su	1	08/23/10 15:05	JK	SM20 4500H

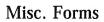












Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody



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D16627: Chain of Custody Page 1 of 1









General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries



METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16627 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Solids, Total Dissolved Specific Conductivity pH	GN6058 GP2631/GN6048 GN6029	10	0.0	mg/l umhos/cm su	400 99.9 8.00	372 90.3 7.96	93.0 90.4 99.5	90-110% 90-110% 99.3-100

Associated Samples: Batch GN6029: D16627-1 Batch GN6058: D16627-1 Batch GP2631: D16627-1 (*) Outside of QC limits

DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16627
Account: HYDRCOG - Hydrokinetics

Project: ECCV DI~	Proje	ct:	ECCV	DI ~ 1
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Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN6058	D16627-1	mg/l	21000	20900	0.5	0-25%
Specific Conductivity	GP2631/GN6048	D16627-1	umhos/cm	3090	3100	0.3	0-20%

Associated Samples: Batch GN6058: D16627-1 Batch GP2631: D16627-1 (*) Outside of QC limits





Reissue #1 11/03/10

Technical Report for

Hydrokinetics

ECCV DI-1

MISSOURIAN - Specific Coud, correction

Accutest Job Number: D16627

Sampling Date: 08/22/10

Report to:

Hydrokinetics 12975 West 24th Place Golden, CO 80401 pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 12

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

John Hamilton

Laboratory Director

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049) This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

1 of 12



November 3, 2010

Pat O'Brien 12975 West 24th Place Golden, CO 80401

Reference: Accutest Job D16627 (Revision 1)

Dear Mr. O'Brien:

The final report for Accutest report D16627 has been revised to correctly report the Specific Conductivilty result for sample DI-1 MISSOURIAN (D16627-1) that had been incorrectly entered into the Laboratory Information Management System (LIMS) due to a transcription error. The corrected result is corroberated by the TDS result, which is typically 70 percent of the Specific Conductivity result.

Colorado • 4036 Youngfield Street • Wheat Ridge, CO 80033 • Tel: 303-425-6021 • Fax: 303-425-6854 • http://www.accutest.com

We apologize for any inconvienence this may have caused.

Sincerely,

Joseph J Egry IV Quality Assurance

Accutest Mountain States

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5.1: Method Blank and Spike Results Summary	1
5.2: Duplicate Results Summary	1.











Sample Summary

Hydrokinetics

ECCV DI-1

Job No:

D16627

Sample	Collected	Matrix	Client	
Number	Date Time By	Received Code Type	Sample ID	
D16627-1	08/22/10 14:40 PO	08/23/10 AQ Water	DI-1 MISSOURIAN	





CASE NARRATIVE / CONFORMANCE SUMMARY

Client:

Hydrokinetics

Job No

D16627

Site:

ECCV DI-1

Report Dat

8/25/2010 5:16:32 PM

On 08/23/2010, one (1) sample, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 3.8°C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D16627 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method ASTM D287

Matrix ALL

Batch ID: GN6050

The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method SM20 2510B

Matrix AO

Batch ID: GP2631

Sample D16627-1DUP was used as the QC sample for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix AQ

Batch ID: GN6058

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample D16627-1DUP was used as the QC samples for the Total Dissolved Solids analysis.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

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Sample Results	
Report of Analysis	

Report of Analysis

Page 1 of 1

Client Sample ID: DI-1 MISSOURIAN Lab Sample ID: D16627-1

Matrix:

AQ - Water

Date Sampled: 08/22/10

Date Received: 08/23/10

Percent Solids: n/a

Project:

ECCV DI-1

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Solids, Total Dissolved Specific Conductivity	21000 30900	10 1.0	mg/l umhos/cm	1 1	08/25/10 08/24/10	CJ	SM20 2540C SM20 2510B
Specific Gravity by Hydrome	ete 1.0143			1	08/24/10	CJ	ASTM D287
pH	7.74		su	1	08/23/10 15:05	JK	SM20 4500H



Misc. Forms
Custody Documents and Other Forms
Includes the following where applicable:
Chain of Custody

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2 Day EMERGENCY				<u> </u>		esults One															,
Day EMERGENCY				L	ovel 2 = A	esulls + Q	C Sumr	nary + C	ase Na	evtana											
Emergency & Rush T/A data available VIA Labink						esults + Qu ut Delivera															
Relicquished by Sarrette: Date Time:	San	ple Custody mus	1 bedybuffy	hidd beli	ow each	time san	noles o	hange	posse	Basion	ı, inclu	ding co	urier de	livery.		. 50	(digital)	and the	ner de	NAME OF THE OWNER.	es de la company
	12128		114	\angle	4-1	3/10 P	enudnia	ited By:							ite Time:		Received I	Ву:		Lead to the	
Relinquished by Sampler: Date Time:	B 3	oosivate By:	(ン		Ph	eiladus	hed By:						De	te Time:		Pecalved I				
Reinquished by: Date Time:	R	eceived By:				Ci	ustody !	Soul 4					Pre		ioge erestra	coulo	4		il.		
												Not misco			The state of the s			C	On los	Cooler 1	****** Z Z Q

D16627: Chain of Custody Page 1 of 1





General Chemistry

5

QC Data Summaries

Includes the following where applicable:

- · Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16627 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Re cov	QC Limits
Solids, Total Dissolved Specific Conductivity pH	GN6058 GP2631/GN6048 GN6029	10	0.0	mg/l umhos/cm su	400 99.9 8.00	372 90.3 7.96	93.0 90.4 99.5	90-110% 90-110% 99.3-100

Associated Samples:
Batch GN6029: D16627-1
Batch GN6058: D16627-1
Batch GP2631: D16627-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D16627 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN6058	D16627-1	mg/l	21000	20900	0.5	0-25%
Specific Conductivity	GP2631/GN6048	D16627-1	umhos/cm	30900	3100		0-20%

Associated Samples: Batch GN6058: D16627-1 Batch GP2631: D16627-1 (*) Outside of QC limits 0

Appendix V. Logging and Testing Results

ECCV DI-1 Injection Well 10. 4-1:15" SM 4-1 15" €M 45.8" 95.8" 7-1,16" 5M 22.0 2-1 16° 5M 2-1/16" 5м 11" 3M 🖺 17.50 2" 3M 5 B' Cusing Casing I-1 2" Tubing

fors drawing is the property of Abod Group Pressure Control and is ponsidered confidencial Unless otherwise approved in writing, neither it not its contents may be used, copied, transmitted or reproduced except for the sole purpose of Wood Ortup Pressure Control.

66 As Built?

WOOD GROUP PRESSURE CONTROL	The state of the s	dro Resourd II-1 Injectio	
9-5 8 . 7 s 4-1 2 5N Consentional	OB 1 WH	BUS	129 JUNITO
Wallhaud Assambly, With T-EBS Tubing Head, T-2W	: P999	V.JIN	29JUNT 0
Tubing Hanger, CID Coupling and Adapter Florige		4£15	71-2

Well Name:

33 INVERNESS CIRCLE E. G-101 ENGLEWOOD, CO 30112 PH (303) 757-7789 FAX (303) 757-7510

Date: 23-Sep-10

Well Man				Location:		Customer Re	p:			Field Order	- #
ECCV D	[-1			SEC1 - T1S	- R66W	FRED R					13083
Stage:				Formation:		Treat Via:	Allowable Pressure Tbg Csq			Well Type:	
				MISSOURI	FINAL Step RATE	CASING	1	5,000			INJECTION
County:				State:	•	Well Age:	PackerT	/pe:		PackerDent	h: Csg Siz
ADAMS CO			CO		NEW		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		9,052	7	
ype Of Se	ervice:	PUMP	-/			Csg Depth	Tbq	Sizo:		g Depth:	
						- Cog Separ	4.5	JIZE.	10	у рерит:	Liner Size
Customer I	Name:	HYDRO RE	SOURCE	S			1.5				
Address:						Liner Depth:	Liner	Top:	Lir	er Bot:	Total Dept
						Open Hole:	Csg \	/ol:	ВН	T:	
						Perf Depths:			Pe	rfs:	TotalPerfs
Remarks: STEP RATES 5 BPM TO 40 BPM FOR 30 MIN									0		0
Ken	narks:	SIEP RATE	ES 5 BPM	TO 40 BPM	FOR 30 MIN PED 870 BBL TOTAL				0		
		ISIP=860 I	PSI	KAIE. PUM	SED 8/0 BBL LOTAL				0		
	į	5 MIN =78	0 PSI 10	0 MIN =750	PSI		<u> </u>		0		
		15 MIN = 1	720 PSI						0		
									0		
· [8.	10115.371	ON DATE			THE PARTY NAMED IN THE PARTY NAMED IN				0		
TIME.	G	ON RATE	PRE: STP	SSURE	REMAR	KS		PRO	-	FOAMFLD	FLUID
11:30	0.0	+- · · · ·	0		SAFETY MEETING			(lbs	()	(gls)	(bbis)
11:30	0.0		0	1	PRIME UP PRESS TEST 1	O5500 PSI			_		-
13:20	0.3	1	94		FILL HOLE			96	:s	23	
13:22	5.2		496		ST 5 BPM AT 650 PSI					6,300	150.0
13:53	6.1		948		ST 10 BPM AT 830 PSI		i	***************************************		12,600	300.0
14:22	6.0		920		PUMP DIED					12,000	300.0
14:23	10.2		1144		ST 20 BPM AT 1170 PSI	·				25,200	600.0
14:54	19.9		1974		ST 39 BPM AT 1980 PSI					49,140	1,170.0
15:00	38.7		4794		INJECTION RATE @ 39 BI	PM AT 4800 PSI				,	1,
15:24	40.0		4765		PSI @ 4750 PSI						
15:25	40.1		4756		STEP DOWN		İ			5,380	140.0
15:33	0.0		861		ISIP = 860 PSI		1	·····			1
15:39	0.0	1	776	1	5 MIN = 780 PSI				1		3

Summary

747

722

Max Fl. Rate	Avg Fl. Rate	Max Psi	Avg Psi
40 1	13.5	5,014	1,972

15:43

15:48

0.0

0.0

Customer Acknowledgement:	Service Rating:	Treater:	PRODUCTS USED
	Satisfactory Unsatisfactory	RICK C	WATER PROVIDED BY CUSTOMER

Total:

966

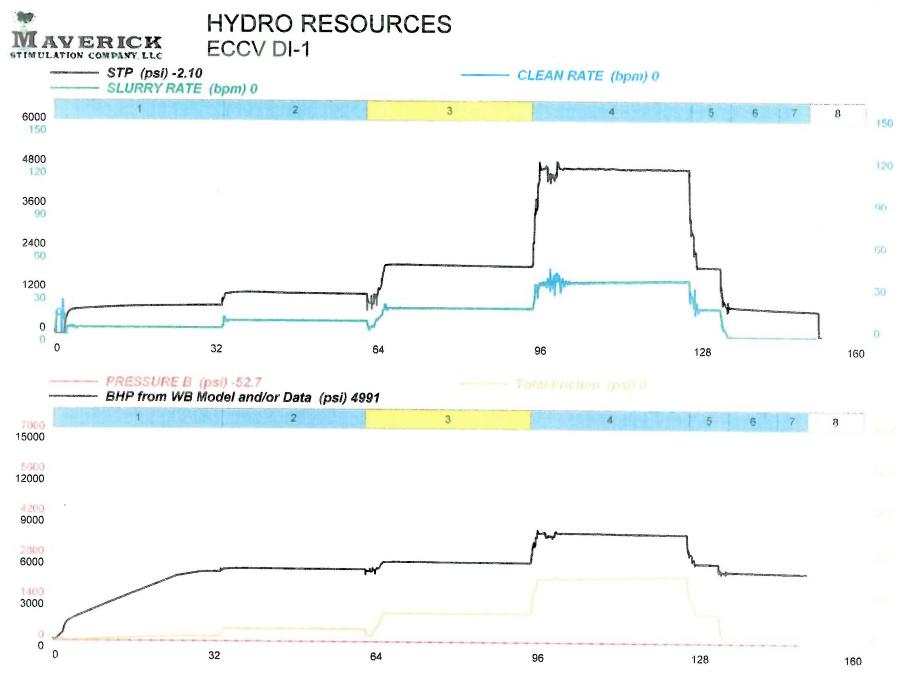
99,143

2,360.0

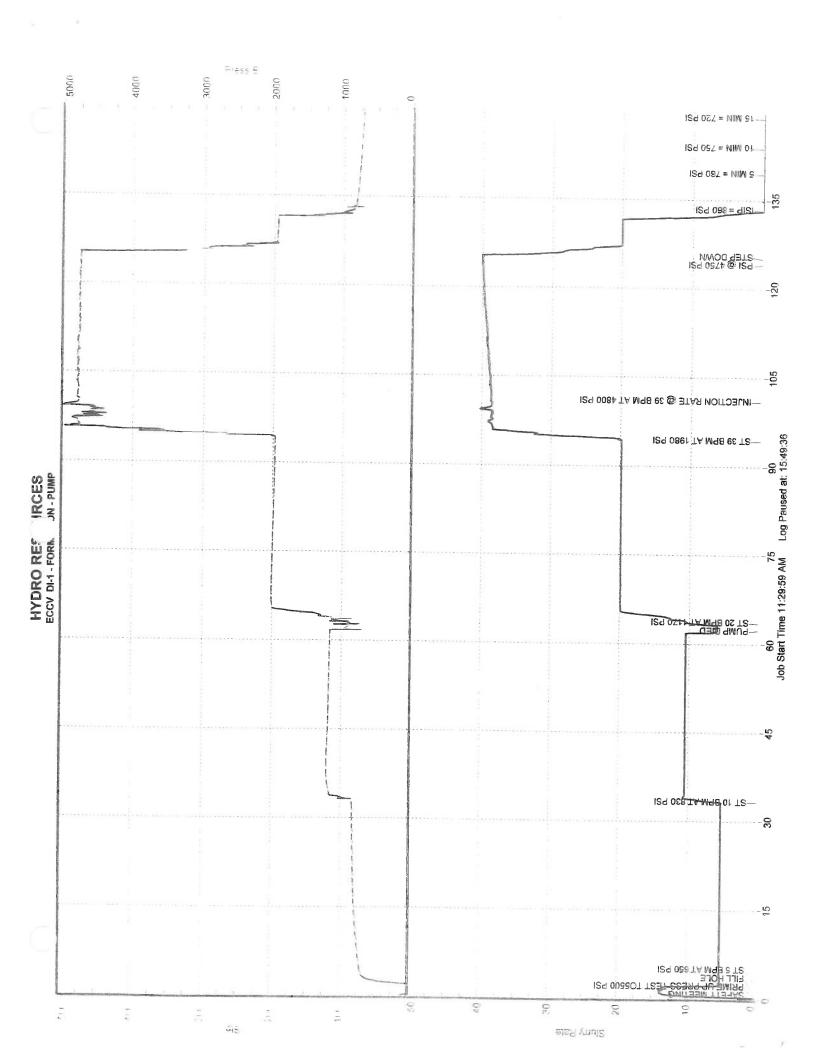
5 MIN = 780 PSI

10 MIN = 750 PSI

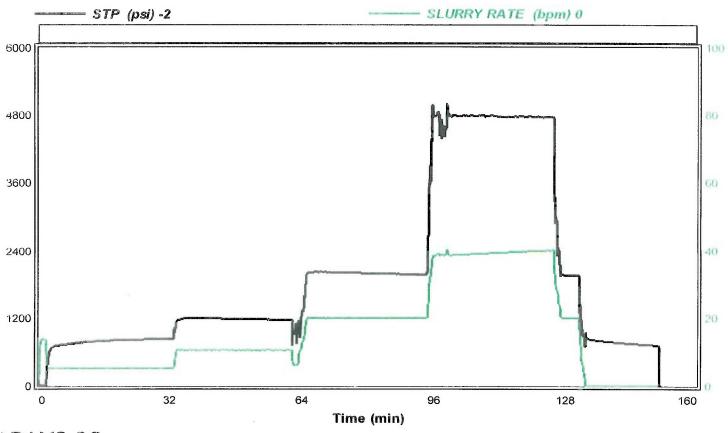
15 MIN = 720 PSI



SEC 1 T1S, R66W ADAMS CO.

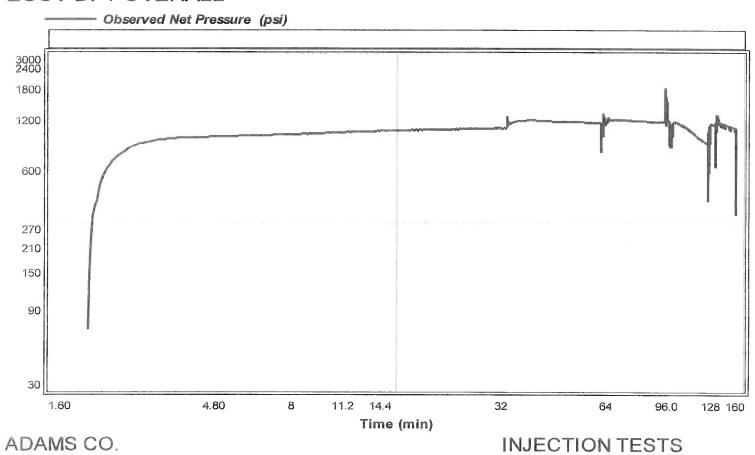


HYDRO RESOURCES ECCV DI-1 OVERALL INJECTION



ADAMS CO.

HYDRO RESOURCES ECCV DI-1 OVERALL



INJECTION WELL COMPLETION REPORT FORM 7520-9--EAST CHERRY CREEK VALLEY WATER AND SANITATION DISTRICT WELL DI-1

Prepared for the Environmental Protection Agency

Prepared by Hydrokinetics, Inc. July 22, 2011

Lyons over All-Step PATE 7857



88 INVERNESS CIRCLE E G-101

Date: 09-Sep-10

Well Name:		Location:	Customer Re	ep:	Field Orde	≈r #
ECCV D-1		SEC 1- T1S - R66W	JOHN ASHBY	′		13074
Stage.		Formation: LYONS OVERALL	Treat Via:	Allowal Tbg	ole Pressure Csg	Well Type:
County:		State:	Well Age:	PackerType:	PackerDep	INJECTION th: Csg Size:
ADAMS		СО	NEW			7
Type Of Service	STEP RATE TEST		Csg Depth:	Tbg Size:	Tbg Depth:	Liner Size:
Customer Name: Address	HYDRO RESOURCE	5	Liner Depth:	Liner Top:	Liner Bot:	Total Depth:
			Open Hole:	Csg Vol:	BHT:	
			Perf Depths:		Perfs:	TotalPerfs:
D1	SULVENTE LOCAL		9152	9253	200	200
Remarks:	PUMPED 1306 BBL	OVER 7 STAGES			0	
	STP = SURFACE AN	NULUS INJECTION PRESSURE			0	
					0	
	ANNULUS=STATC T	UBING PRESSURE			0	
					0	
	ION RATE PRE	SSURE			0	

	MUECTIO	ON RATE	PRE	SSURE				
TIME	FLUID	N2/CO2	STP	ANNULUS	REMARKS	PROP (ibs)	FOAM/FLD (gis)	FLUII (bbis
13:42	2.3		21		SAFETY MEETING	0	0	(nnis
13:42	2.3		21	0	PRIME UP PRESS TEST TO 5000 PSI	0	0	
13:43	2.3		22	0	LOAD WELL	0	0	
13:55	0.0		350	383	SHUT DOWN	0	0	
13:59	0.0		244	290	FILL ANNULUS	0	0	
14:06	2.0		583	648	ST 2 BPM AT600 PSI	0	4.452	10
14:36	1.9		784	785	END=786 PSI STAT/INJ	0	0	
14:38	2.2		814	786	ST 3 BPM AT 840 PSI	0	3,780	9
15 08	3.0	932	. 942	835	END=835 PSI STAT/ 925 INJ	0	0,700	
15:08	4.1		1028	836	ST 4 BPM AT 853 PSI		5.040	12
15:38	4.1		919	786	END =789 PSI STAT/909 PSI INJ	0	0,040	
15.38	4.6		999	787	ST 6 BPM AT 1050 PSI	0	7.560	18
16 08	6.1		1008	769	END = 776 PSI STAT/ 950 PSI INJ	- 0	0	
16:08	6.1		1044	769	ST 8 BPM AT 787 PSI	0	10.080	24
16:38	8.0	-	1062	755	END = 756 PSI STAT/ 1088 PSI INJ	0	0	
16:38	8.5		1122	755	ST 9 BPM AT 1130 PSI	0	11 340	27
17 08	9.0		1131	769	END=1142 PSI STAT/769 PSI INJ	0	0	
17:08	9.1		1215	770	ST 10 BPM AT 1225 PSI	0	12.600	300
17:38	2.2		697	778	END =792 PSI STAT/ 1254 PSI INJ	0	0	
17.38	1.1		703	777	ISIP= 700 PSI STAT/750 PSI INJ	- 0	0	(
17 43	0.0		725	680	5 MIN = 680 PSI STAT/ 725 PSI INJ	0	0	
17 48	0.0		706	664	10 MIN =655 PSI STAT/ 706 PSI INJ	0	0	
17:53	0.0		691	650	15 MIN = 650 PSI STAT/ 690 PSI INJ	0	0	

Customer Acknowledgement:	Service Rating:	Treater:	PRODUCTS USED
-	Salisfactory Disabsfactory	RICK C	WATER PROVIDED BY CUSTOMER



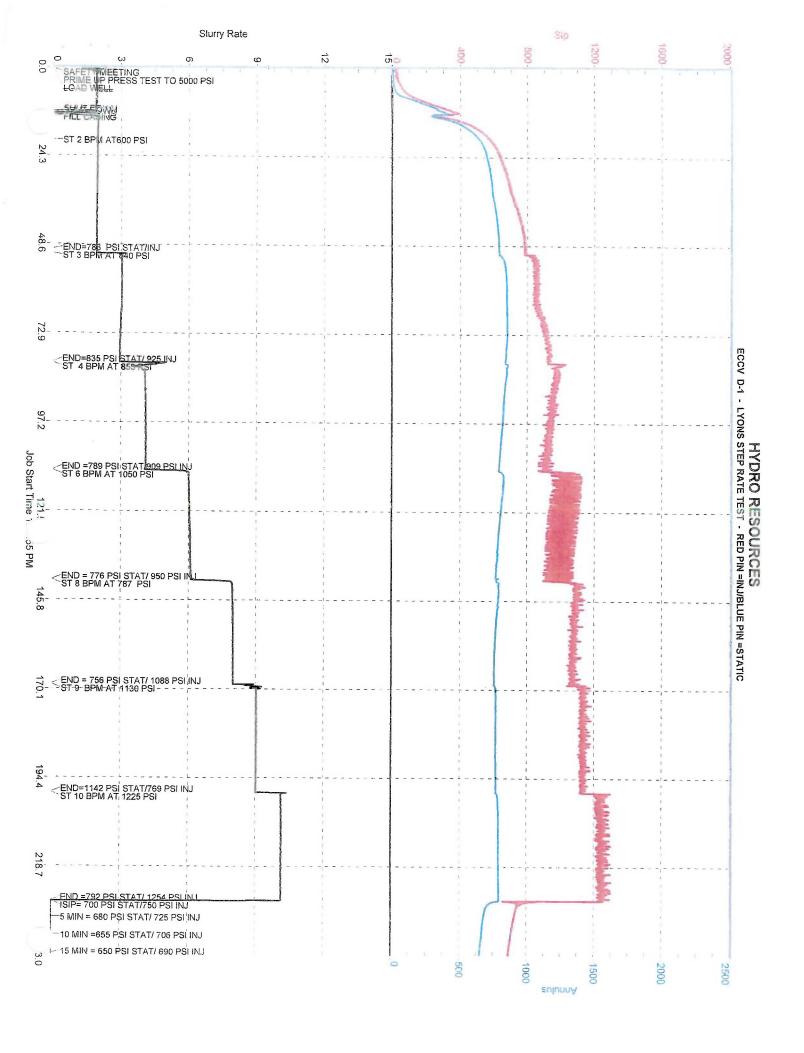
Date: 09-Sep-10

Total: 0 54,852 1,306

Summary

Max FI Rate Avg FI. Rate Max Psi Avg Psi 9.1 1,301 64 919

Customer Acknowledgement:	Service Rating:	Treater	PRODUCTS USED
	Satisfactory Unsatisfactory	RICK (WATER PROVIDED BY CUSTOMER



wolf amp- Step RATE TOST



88 INVERNESS CIRCLE E. G-101 ENGLEWOOD, CO 80112
STIMULATION COMPANY, LLC
PH (303) 757-7789 FAX (303) 757-7610 TREATMENT REPORT - PAGE 1

Date: 30-Aug-10

Well Name:		Location:	Customer Re	ep:		Field Orde	r#
ECCV DI-1		SEC.1-T1S-R66W	JOHN ASHB	1			13315
Stage:		Formation:	Treat Via:		Allowab Tbg	le Pressure Csg	Well Type:
		WOLF CAMP	TUBING		4,000		INJECTION
County:		State:	Well Age:	Packer	Type:	PackerDep	th: Csg Size:
ADAMS		СО	NEW			9,525	7
Type Of Service:	STEP RATE TEST	•	Csg Depth	Tb	g Size:	Tbg Depth:	Liner Size:
7,		- 1		3.5	5		
Customer Name:	HYDRO RESOURCE	S	Liner Depth:	Lir	er Top:	Liner Bot:	Total Depth:
Address:							
			Open Hole:	Cs	g Vol:	внт:	
				84			
	l I		Perf Depths:			Perfs:	TotalPerfs:
			9558	95	82	0	0
Remarks:	SAFETY MEETING					0	
		SURE TEST 4300 PSI,				0	
		THRU 9 BPM,30 MIN PER STGE S OF FLUSH WATER,				0	
	SHUT DOWN, ISIP	· ·				0	
	557 501117 1511					0	
						0	

	INJECTIO	N RATE PRE		SSURE	REMARKS	CS PROP F		FLUID
TIME	FLUID	N2/CO2	STP	ANNULUS	KLRAKKO	(lbs)	FOAM/FLD (gls)	(bbls)
10:58	0.0		-13	-7	SAFETY MEETING	0	0	0
11:02	0.0		2	-9	PRESSURE TEST TO 4300 PSI	0	0	0
11:02	0.0		3	-9	ST PUMP-IN	0	0	0
11:03	1.9		1088	-9	2 BPM INJ. RT.TEST START, 1080 PSI	0	0	0
11:33	2.1		1115	-8	2.1 BPM INJ. RT.TEST FINISH, 1120 PSI	0	0	0
11:34	3.2		1260	-8	3.1 BPM INJ. RT.TEST START, 1250 PSI	0	0	0
12:04	3.3		1250	-8	3.2 BPM INJ. RT.TEST FINISH, 1250 PSI	0	0	0
12:05	4.0		1353	-8	4 BPM INJ. RT.TEST START, 1349 PSI	0	0	C
12:36	4.0		1345	-8	4 BPM INJ. RT.TEST FINISH, 1350 PSI	0	0	C
12:38	4.9		1508	-8	4.9 BPM INJ. RT.TEST START, 1510 PSI	0	0	C
13:08	5.0		1554	-9	4.9 BPM INJ. RT.TEST FINISH, 1560 PSI	0	0	C
13:09	6.1		1772	-9	6 BPM INJ. RT.TEST START, 1767 PSI	0	0	C
13:39	6.1		1769	-10	6.1 BPM INJ. RT.TEST FINISH, 1770 PSI	0	0	C
13:40	7.0		1956	-10	7 BPM INJ. RT.TEST START, 1960 PSI	0	0	C
14:10	7.0		1954	-9	7 BPM INJ. RT.TEST FINISH, 1950 PSI	0	0	C
14:11	8.0		2183	-9	8 BPM INJ. RT.TEST START, 2182 PSI	0	0	C
14:41	8.1		2208	-9	8.1 BPM INJ. RT.TEST FINISH, 2210 PSI	0	0	(
14:42	9.0		2451	-9	9 BPM INJ. RT.TEST START, 2460 PSI	0	0	C
15:12	7.3		1905	-10	SHUT DOWN, ISIP = 660 PSI	0	58,170	1,385
15:17	0.0		719	-10	5 MIN. = 718 PSI	0	0	(
15:22	0.0		847	-9	10 MIN.= 850 PSI	0	0	(
15:27	0.0		932	-9	15 MIN.= 930 PSI	0	0	(
15:32	0.0		895	-9	20 MIN.= 900 PSI	0	0	(

Customer Acknowledgement:	Service Rating:	Treater:	PRODUCTS USED
	Satisfactory	RON PETERSON	WATER PROVIDED BY CUSTOMER
	Unsatisfactory		





88 INVERNESS CIRCLE E. G-101 ENGLEWOOD, CO 80112 PH (303) 757-7789 FAX (303) 757-7610

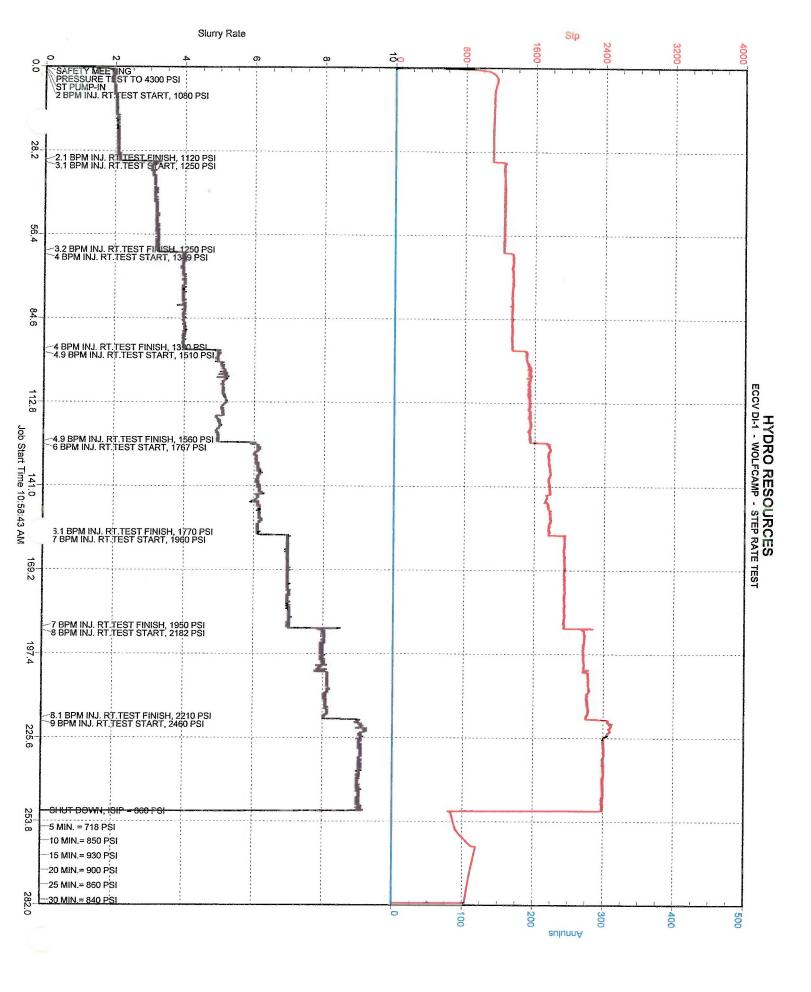
Date: 30-Aug-10

15:37	0.0	864	-9	25 MIN.= 860 PSI	0	0	0
15:42	0.0	835	-9	30 MIN.= 840 PSI	0	0	0
				Total:	0	58,170	1.385

Summary

Max Fl. Rate	Avg Fl. Rate	Max Psi	Avg Psi
9.0	5.4	2,507	1,598

ice Rating:	Treater:	PRODUCTS USED
Satisfactory	RON PETERSON	WATER PROVIDED BY CUSTOMER
Unsatisfactory		



Amazon-Council Grove - Sty RATE TEST

88 INVERNESS CIRCLE E. G-101 MAYERICK ENGLEWOOD, CO 80112 PH (303) 757-7789 FAX (303) 757-7610 TREATMENT REPORT - PAGE 1

Date: 26-Aug-10

Well Name:		Location:	Customer R	ep:		Field Orde	er#
ECCV DI-1		SEC. 1 - T1S - R66W	JOHN ASHB	Υ			13193
Stage:		Formation:	Treat Via:		Tbg	le Pressure Csg	Well Type:
		AMAZON/COUNCIL GROVES	TUBING		4,000		INJECTION
County:		State:	Well Age:	Packer1	Гуре:	PackerDep	th: Csg Size:
ADAMS		СО	NEW			9,622	7
Type Of Service:	STEP RATE TEST	-	Csg Depth	Tbg	Size:	Tbg Depth:	Liner Size:
				3.5			
Customer Name:	HYDOR RESOURCE	ES	Liner Depth:	: Line	er Top:	Liner Bot:	Total Depth:
Address:					ļ		
			Open Hole:	Csg	Vol:	BHT:	
				84			
			Perf Depths:			Perfs:	TotalPerfs:
			9664	973	2	350	350
Remarks:	SAFETY MEETING					0	
	PUMPED 1410 BBL	S WATER				0	
	ISIP = 936 PSI 5 MIN = 741 PSI/1	0 MIN = 663 PSI				0	
	•	/20 MIN = 505 PSI				0	
		/30 MIN = 326 PSI				0	
						0	

	INJECTIO	ON RATE	PRES	SSURE	DEMADIZO	DDOD	FOAMELD.	FILED
TIME	FLUID	N2/CO2	STP	ANNULUS	REMARKS	PROP (lbs)	FOAM/FLD (gis)	FLUID (bbls)
11:07	0.0	0.0	-3		SAFETY MEETING	0	0	0.0
11:08	1.4	0.0	0		PRIME UP PRESS TEST TO 5700 PSI	0	0	0.0
11:08	1.5	0.0	1		ST PUMP-IN	0	59,220	1,410.0
11:16	2.2	0.0	188		ST TEST	0	0	0.0
11:16	2.2	0.0	197		INJECTION RATE @ 2.2 BPM = 240 PSI	0	0	0.0
11:45	2.0	0.0	592		INJECTION RATE @ 2 BPM = 592 PSI	0	0	0.0
11:50	3.5	0.0	1045		INJECTION RATE @ 3.5 BPM = 1070 PSI	0	0	0.0
12:15	3.6	0.0	1136		INJECTION RATE @ 3.6 BPM = 1136 PSI	0	0	0.0
12:18	4.1	0.0	1225		INJECTION RATE @ 4.1 BPM = 1218 PSI	0	0	0.0
12:45	4.0	0.0	1185		INJECTION RATE @ 4.0 BPM = 1185 PSI	0	0	0.0
12:50	5.0	0.0	1392		INJECTION RATE @ 5.1 BPM = 1397 PSI	0	0	0.0
13:15	5.4	0.0	1395		INJECTION RATE @ 5.2 BPM = 1397 PSI	0	0	0.0
13:19	6.2	0.0	1567		INJECTION RATE @ 6.2 BPM = 1565 PSI	0	0	0.0
13:45	6.4	0.0	1591		INJECTION RATE @ 6.3 BPM = 1588 PSI	0	0	0.0
13:47	7.1	0.0	1777		INJECTION RATE @ 7.1 BPM = 1774 PSI	0	0	0.0
14:15	7.3	0.0	1806		INJECTION RATE @ 7.2 BPM = 1786 PSI	0	0	0.0
14:17	8.4	0.0	2090		INJECTION RATE @ 8.5 BPM = 2062 PSI	0	0	0.0
14:45	8.8	0.0	2135		INJECTION RATE @ 8.8 BPM = 2133 PSI	0	0	0.0
14:46	9.7	0.0	2346		INJECTION RATE @ 9.7 BPM = 2370 PSI	0	0	0.0
15:15	9.5	0.0	2207		INJECTION RATE @ 9.6 BPM = 2370 PSI	0	0	0.0
15:15	0.4	0.0	872		CUT FLUID - ISIP = 936 PSI	0	0	0.0
15:21	0.0	0.0	741		5 MIN = 741 PSI	0	0	0.0
15:26	0.0	0.0	663		10 MIN = 663 PSI	0	0	0.0
15:31	0.0	0.0	580		15 MIN = 580 PSI	0	0	0.0

Customer Acknowledgement:	Service Rating:	Treater:	PRODUCTS USED
	Satisfactory	CLEAT YOUNG	FLUID PROVIDED BY CUSTOMER
	Unsatisfactory		



88 INVERNESS CIRCLE E. G-101

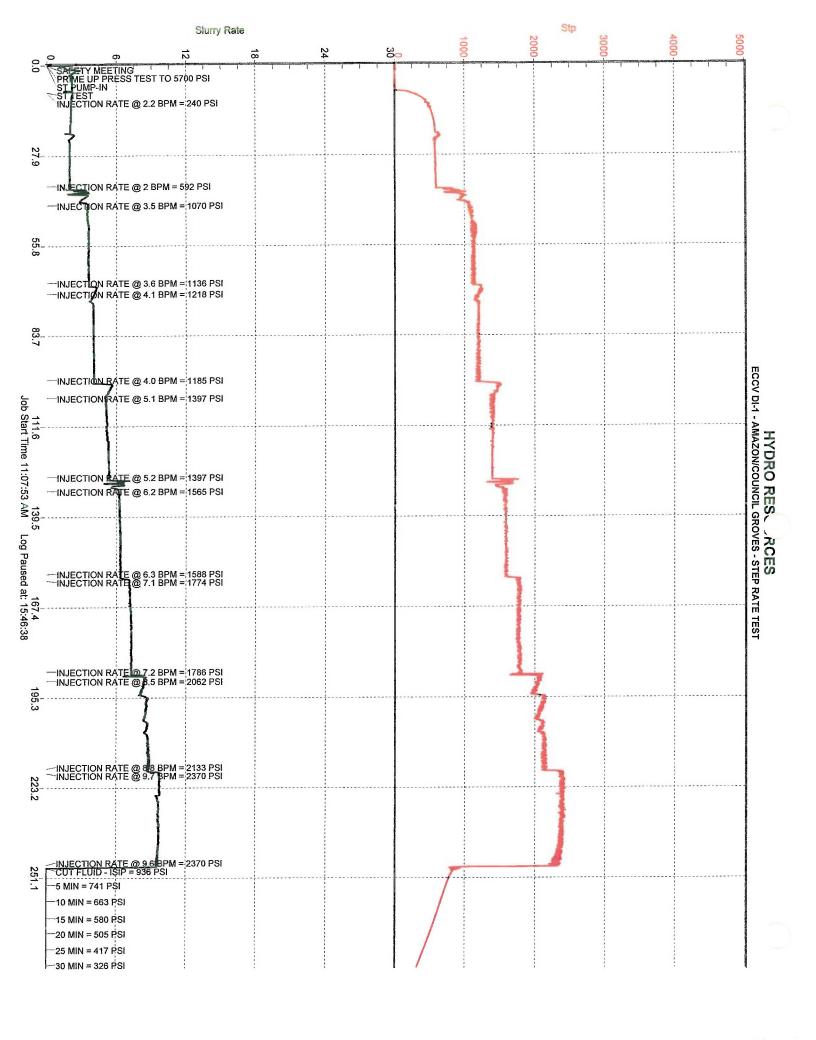
Date: 26-Aug-10

15:36	0.0	0.0	505	20 MIN = 505 PSI	0	0	0.0
15:41	0.0	0.0	417	25 MIN = 417 PSI	0	0	0.0
15:46	0.0	0.0	326	30 MIN = 326 PSI	0	0	0.0

Summary

Max Fl. Rate	Avg Fl. Rate	Max Psi	Avg Psi
9.7	4.9	2,435	1,365

Customer Acknowledgement:	Service Rating:	Treater:	PRODUCTS USED
	Satisfactory	CLEAT YOUNG	FLUID PROVIDED BY CUSTOMER
	Unsatisfactory		



MISSONIAN - Step PATE TEST



88 INVERNESS CIRCLE E. G-101

TREATMENT REPORT - PAGE 1

Date: 23-Aug-10

Well Name:		Location:	Customer R	ep:	Field Order #		
ECCV DI-1		SEC1 - T1S - R66W	JOHN ASHBY		13069		
Stage:		Formation:	Treat Via:	Tbg	le Pressure Csg	Well Type:	
		MISSOURI	TUBING	4,000		INJECTION	
County:		State:	Well Age:	PackerType:	PackerDep	th: Csg Size:	
ADAMS		СО	NEW		9,900	7	
Type Of Service:	INJECTION TEST		Csg Depth	Tbg Size:	Tbg Depth:	Liner Size:	
Type of octaine.	INOCOTION 120			3.5			
Customer Name:	HYDRO RESOURCES		Liner Depth	Liner Top:	Liner Bot:	Total Depth:	
Address:			Open Hole:	Csg Vol:	внт:		
				86.1			
			Perf Depths		Perfs:	TotalPerfs:	
			10002	10038	216	216	
Remarks:	STEP RATES 1 BP	M TO 8 BPM FOR 30 MIN			0		
		H RATE. PUMPED 870 BBL TOTAL			0		
	ISIP=1500 PSI	I 10 MIN = 1130 PSI			0		
		SI 20 MIN = 1016 PSI			0		
		30 MIN = 940PSI			0		
					0		

	INJECTION RATE		PRE	SSURE	REMARKS	PROP	FOAM/FLD	FLUID
TIME	FLUID	N2/CO2	STP	ANNULUS	KEMPARO	(lbs)	(gls)	(bbis)
10:14	0.0		30		SAFTY MEETING			
10:14	0.0		30		PRIME UP PRESS TEST TO 4500 PSI			
10:14	0.0		30		ST PUMPING		36,540	870.0
10:20	0.0		97		ST 1 BPM AT 1140 PSI			
10:49	1.0		1621		END PSI 1622 PSI			
10:49	1.1		1626		ST 2 BPM AT 1740 PSI			
11:20	2.3		1779		END 1760 PSI			
11:21	3.0		1894		ST 3 BNBPM AT 1900 PSI		Pinner	
11:49	3.0	-	1889		END PSI 1890		-	
11:50	4.0		2040		CHANGE GEAR			
11:51	4.0		2083		ST 4 BPM AT 2050 PSI			0.0
12:20	4.0		2018		END 2020PSI			
12:21	5.0	1	2212		ST 5 BPM AT2200 PSI			
12:50	6.3		2451		END 2170 PSI			
12:50	6.1		2364		ST 6 BPM AT 2350 PSI		44	
13:20	6.1		2367		END AT 2370 PSI		ATT LETON OF	
13:21	8.0		2870		ST 8 BPM AT 2880 PSI			
13:50	8.2		2836		END AT 2840 PSI			
13:50	0.0		1439		ISIP= 1500 PSI			
13:55	0.0		1222		5 MIN = 1220 PSI			
14:00	0.0		1128		10 MIN = 1130PSI			
14:05	0.0		1065		15 MIN 1064 PSI			
14:10	0.0	12 1110	1018		20 MIN = 1016 PSI			
14:15	0.0		975		25 MIN=980 PSI			

Customer Acknowledgement:	Service Rating:	Treater:	PRODUCTS USED
	Satisfactory	RICK C	
	Unsatisfactory		WATER PROVIDED BY CUSTOMER.



88 INVERNESS CIRCLE E. G-101 ENGLEWOOD, CO 80112

Date: 23-Aug-10

			30 MIN = 940 PSI	945	0.0	14:20
870	36,540	Total:				'

Summary

Avg Psi Max Fl. Rate Avg Fl. Rate Max Psi 8.2 4.4 3,090 1,944

Customer Acknowledgement:	Service Rating:	Treater:	PRODUCTS USED
Customer Acknowledgement.	Satisfactory	RICK C	AND DECLETOMED
	Unsatisfactory		WATER PROVIDED BY CUSTOMER.

Appendix VIII. Injectate Water Quality Data



07/18/11



Technical Report for

Hydrokinetics

ECCV DI-1 INJECTATE, RADIONUCLIDES

Accutest Job Number: D24047X

Sampling Date: 06/06/11

Report to:

Hydrokinetics 12975 West 24th Place Golden, CO 80401 pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 19



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

John Hamilton Laboratory Director

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Sections:

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-1-

Section 1: Sample Summary	3
Section 2: Sample Results	4
Section 3: Mix. Forms	7:
Use Chain of Custody	6









Sample Summary

Hydrokinetics

ECCV DI-1

Job No:

D24047X

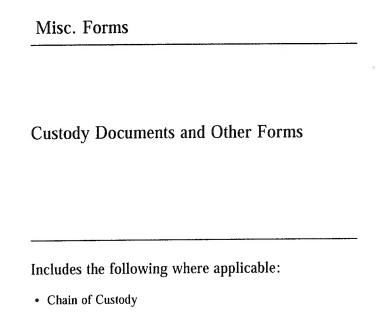
Sample	Collected	ļ	Matrix	Client	
Number	Date	Time By	Received Code Type	Sample ID	
D24047-1X	06/06/11	12:10 PO	06/06/11 AQ Water	DI-1	





Sample Results	 	
Report of Analysis		







ACCUTEST		CHAIN OF CUSTODY Acqueen Laboratories Mountain States									FED-UX Tracong #						PAGE OF				=			
LABORATURIE			4036 Young	field Stre 13-425-60	et Whest	Ridge, Co 877 737 4	800	33					Accules:		•	-			Accures:		101	<u>a</u>	4	
Client / Reporting information	1.	and the same of	Prol		03 425 6 ormatic					146	Section 1		15.301	Ď.		Anal	-14-1	102		0.00	$\overline{}$	<u> </u>	1000	Market Carle
Company Name	Project Nome		(10)	a'er iitiv) Interns	***				C INC.			3	Ved:	Ibstet	PARIO	-		2011					Matrix Codes
HYDROKINETICS		DI-1											3	E	۱, د	-	P	3		8 8	12			DW - Drinking Wa GW - Ground Wat
Street Acidess	Street			1	All the said		10520	9500	300	ALC: NO	26.65		2	.0	1 3	•	0	Sil	2	3	ď			WW - Water
Circ Stote Zin	City				illing In	formatio	n ()f	differ	ont f	rom Re	port (to)	+0	79	9	Alum	Fe	40	M	75	5,			SW - Surface War SO - Soil
adden & Sovol					111								Moz	U	· 3	A.	3,	Se	<u> </u>	3	ij	0		SL- Sludge SED-Sediment
Company, Name Hydrokine Tic3 Street Audolds Street Audolds Cly Street Audolds Cly Street Audolds Cly Street Colden & Sould Project Contact Physics Person Person Person Fax Pers	Projection +	PI-	7	Street	Address	· · · · ·							D.A.	્ર	A	Beny	Borow,	1.	1140	GAOSA, GWS	ria.	Pb 210		QI-Oil LIQ-Other Liqui AIR-Air
Phone # Fax #	Clant POS	OI-1		City		******		State			Ziρ		4	Fluori	EP	Ba		70,	Hallium		¥	0	-	SOL - Other Soil WP - Wipe FB-Field Blank
Sample (5) Name (5) Prome Prom	Project Manager	<u> </u>		Attent	on:				PO	,			Deuxity of	T	AVGLIER	الد	7	7.		owa	35	X 1/20		EB- Equipment Blank RB- Rinse Blank TB-Trip Blank
1000	 	T	Callecton				T	Numb	er of p	reserved	Bottles				3	SOLVE	S	46	20	7	2,	23		
Accusari Sample # Field ID / Point of Collection	MEOH/DI Viol #	Date	Time	Sampled by	Matrix	af bottle	, g	AMO3	H2SO4	NONE DI Woter	MEOH	Bisultate	705	Sulfare	2	٠ \$]	9	M.W.	Strontium	Spec, coud,	4234, 4338 Thoulan 230, A 222	Ro228,		LAB USE ONL
DZ-/		6/6/11		PAS	W		1	2 1	-	2 0	-	-	'n				\ <u>C</u>	X	7	Ÿ	¥	7		P)]_
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Date Time:

Date Time:

1404

D24047X: Chain of Custody

Page 1 of 14



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D2404	7 Client: HYDROKIN	TICS	immediate Client Services	
Date / Time Received: 6/6/20		olers: 1	Client Service Action F	Required at Login: No
Project: DI-1			Airbill #'s: HD	
1. Custody Seals Present: 2. Custody Seals Intact:	or N		sample Integrity - Documentation Sample labels present on bottles: Container labeling complete: Sample container label / COC agree:	Y or N. Z
1. Temp criteria achieved: 2. Cooler temp verification: 3. Cooler media: Out the Control Processing of the Control Proce	infared gun	1. 2	ample Integrity - Condition Sample recyd within HT: All containers accounted for: Condition of sample:	Y or N Intact
Quality Control Preservation 1. Trip Blank present / cooler: 2. Trip Blank listed on COC: 3. Samples preserved properly: 4. VOCs headspace free:		<u>\$</u>	iample integrity - Instructions 1. Analysis requested is clear: 2. Bottles received for unspecified tests 3. Sufficient volume rec'd for analysis: 4. Compositing instructions clear: 5. Filtering instructions clear:	Y or N N/A
Comments			Street	Wheat Ridge, CO
Accutest Laboratories V:(303) 425-6021		4036 Youngfield F: (303) 425-		Wheat Ridge, CO www/accutest.com

D24047X: Chain of Custody

Page 2 of 14





CHAIN OF CUSTODY

4036 Youngfield St., Wheat Ridge, CO 80033 303-425-6021 FAX: 303-425-6854

Accutest Job #:	D24047X
Accutest Quote #:	
AMS P.O. #:	
Project No :	

												Project No.			ALC: THE PARTY	1000 and
Client Information	HARRY	Su	bcontract L	aborato	ry Info	mat	ion		_		Anal	ytical info	rmation			10.25
Name Accutest Mountain States (AM	S)	Name	Eill in New	- Cub L	ato E	The	(Jy	L	65	₹		Uranium(224/228/ Thorium(230) (both epa908)			#5 3.	
Address 4036 Youngfield St.		Address	Street Add	iress						radium 226/228(EPA903+RA- 05)	Total	oriun	Potassium-40(epa 901.1)			
City State	Zip	City	0"		State		Zip Zip			Ą.	+	1-	8	ଚ	V	1,
Wheat Ridge, CO	80033	Contact	City		State		<u>دبې .</u>		_	8(E		877	de)	8	WEL-12	i. Asirikiy
Send Report to: Tiffany Pha		Contact	Contact							122	48	4,8	6	eg.	-	1
Ally questions seminate		Phone:	Phone #							526	हु ह	5,08	Ė	ğ		
Phone/Fax #: (303) 425-6021; (303)	1	Collection				Pr	ese	rvat	_	Ē	s a		SS	42		7
Field ID / Point of Collection	Date	Time		Matrix	# of bottles	ğ	E S	250	None	radir 05)	gross alpha/beta solids(epa 900)			Lead-210(epa 909)		mente
D24047X -1	6/6/11	12:10 PM		DW	9		_	_		Х	X	X	X	X		
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Turnaround Information			a telegraph of the	Da	a Delive	rable	Info	rmat	on	14386	72	111111111111111111111111111111111111111	Commente	/Remarks	-1	
X 10 Businesa Day Standard	Approve	đ By:	Comme	ercial "A"	•		PD	F							olorado	
Other (Days)	• • •		Comme	ercia "B			Co	mpa	ct Die	k Delivera	ble		regula	uons a	nd RLs.	
(-)(-)			Comme	ercial "B	N"		Ele	ctro	nic D	elivery:			4			
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10 Day Turnaround Hardcopy, RUSH is I	AX Data unio	ess previously	Full Tie	er 1			Ot	her (Speci	ify)			4			
					neion	incl	udle	10 C	nui e	r delivery		Fo	r Subcont	ract Labo	rartory Use	Only
approved. Sample Custody must be docume Relinguished by:	nted below	each time sar	Reserved By	e bosse	\ \ \	nicit					Contra	Seal #:		Headspace Yes	:0:	NA 🗀
Relinquished by:			1177		<u>لالل</u>	10	_			7-I	915	Preserve	d where ap		140	, 101 1
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2 Relinguished by:	Date & Time	s:	Received	- 1 in			_	- 1		Time:		Tempera	ture *C /n	1,6	On Ice	/
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D24047X: Chain of Custody

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Helena, MT 877-472-0711 * Billings, MT 800-735-4489 * Casper, WY 888-235-0515 Gillette, WY 866-686-7175 * Rapid City, SD 888-672-1225 * College Station, TX 888-690-2218

ANALYTICAL SUMMARY REPORT

July 15, 2011

Accutest Mountain States 4036 Youngfield St Wheat Ridge, CO 80033

Workorder No.: C11060329 Project Name: D24047X

Energy Laboratories, Inc. Casper WY received the following 1 sample for Accutest Mountain States on 6/7/2011 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
C11060329-001	D24047X-1	06/06/11 12	:10 06/07/11	Aqueous	Gross Alpha, Gross Beta Gross Gamma Lead 210, Total Radium 226, Total Radium 228, Total Thorium, Isotopic Uranium, Isotopic, Total Solids, Total Suspended

This report was prepared by Energy Laboratories, Inc., 2393 Salt Creek Hwy., Casper, WY 82601. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing. All samples are reported on an as received basis unless otherwise indicated. Samples corrected for dry weight indicate units that have -dry appended.

If you have any questions regarding these test results, please call.

Report Approved By:

Styphanic D Waldup Reporting Supervisor

Digitally signed by Stephanie Waldrop Date: 2011.07.15 13:10:01 -06:00



www.energylab.com Analytical Excellence Since 1952

Helena, MT 877-472-0711 · Billings, MT 800-735-4489 · Casper, WY 888-235-0515 Gillette, WY 866-686-7175 • Rapid City, SD 888-672-1225 • College Station, TX 888-690-2218

CLIENT:

Accutest Mountain States

Project:

D24047X

Sample Delivery Group: C11060329

Report Date: 07/15/11

CASE NARRATIVE

TH230 ANALYSIS

USNRC Regulatory Guide 4.14 provides guidance on Minimum Detectable Concentrations (MDC) that should be achieved in samples for this radionuclide. The sample-specific MDC for this sample could not be achieved due to significant matrix interferences, restricting the volume of sample to be used in the analysis. Please consult with your local regulatory agency prior to using these results for compliance purposes.

BRANCH LABORATORY SUBCONTRACT ANALYSIS

Tests associated with analyst identified as ELI-CS were subcontracted to Energy Laboratories, 415 Graham Rd., College Station, TX, EPA Number TX01520.

LABORATORY ANALYTICAL REPORT

Prepared by Casper, WY Branch

Client:

Accutest Mountain States

Project:

D24047X

Lab ID:

C11060329-001

Client Sample ID: D24047X-1

Report Date: 07/15/11

Collection Date: 06/06/11 12:10

DateReceived: 06/07/11

Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	06/08/11 17:13 / lmc
RADIONUCLIDES - TOTAL							
Gross Alpha	146	pCi/L				E900.0	07/01/11 03:37 / ep
Gross Alpha precision (±)	56.9	pCi/L				E900.0	07/01/11 03:37 / ep
Gross Alpha MDC	81.2	pCi/L				E900.0	07/01/11 03:37 / ep
Gross Beta	90.2	pCi/L				E900.0	07/01/11 03:37 / ep
Gross Beta precision (±)	53.0	pCi/L				E900.0	07/01/11 03:37 / ep
Gross Beta MDC	86.2	pCi/L				E900.0	07/01/11 03:37 / ep
Lead 210	-0.6	pCi/L	U			E909.0	06/27/11 19:11 / eli-cs
Lead 210 precision (±)	0.9	pCi/L				E909.0	06/27/11 19:11 / eli-cs
Lead 210 MDC	1.5	pCi/L 10				E909.0	06/27/11 19:11 / eli-cs
Radium 226	1.0	pCi/L				E903.0	07/14/11 01:56 / trs
Radium 226 precision (±)	0.31	pCi/L				E903.0	07/14/11 01:56 / trs
Radium 226 MDC	0.27	pCi/L しじ				E903.0	07/14/11 01:56 / trs
Radium 228	2.9	pCi/L				RA-05	07/08/11 15:45 / plj
Radium 228 precision (±)	1.6	pCi/L				RA-05	07/08/11 15:45 / plj
Radium 228 MDC	2.4	pCi/L 60				RA-05	07/08/11 15:45 / plj
Thorium 230	0.1	pCi/L	U			E908.0	06/30/11 10:26 / dmf
Thorium 230 precision (±)	0.5	pCi/L				E908.0	06/30/11 10:26 / dmf
Thorium 230 MDC	1.4	pCi/L 100				E908.0	06/30/11 10:26 / dmf
Uranium 234	131	pCi/L				E908.0	07/07/11 16:00 / dmf
Uranium 234 precision (±)	20.0	pCi/L				E908.0	07/07/11 16:00 / dmf
Uranium 234 MDC	2.2	pCi/L 300				E908.0	07/07/11 16:00 / dmf
Uranium 238	94.9	pCi/L				E908.0	07/07/11 16:00 / dmf
Uranium 238 precision (±)	15.6	pCi/L				E908.0	07/07/11 16:00 / dmf
Uranium 238 MDC	1.9	pCi/L 300				E908.0	07/07/11 16:00 / dmf
- See Case Narrative regarding Th230 analysis.							
RADIONUCLIDES - GAMMA							
Potassium 40	206	pCi/L		50.0		E901.1	06/16/11 09:00 / dpb
Potassium 40 precision (±)	80.7	pCi/L 400	0			E901.1	06/16/11 09:00 / dpb

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit.

MDC - Minimum detectable concentration

MCL - Maximum contaminant level.

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



Prepared by Casper, WY Branch

Client: Accutest Mountain States

Project: D24047X

Report Date: 07/15/11

Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D				,					Batch:	R146806
Sample ID: MBLK1_	М	ethod Blank				Run: BAL-1	_110608B		06/08	/11 17:12
Solids, Total Suspended TSS @	105 C	ND	mg/L	4.0						
Sample ID: LCS1_	La	aboratory Cor	trol Sample			Run: BAL-1	_110608B		06/08	/11 17:13
Solids, Total Suspended TSS @	105 C	164	mg/L	12	82	60	110			
Sample ID: C11060355-001ADU	P Sa	ample Duplica	ate			Run: BAL-1	_110608B		06/09	/11 10:16
Solids, Total Suspended TSS @		103	mg/L	6.0				1.0	10	

Prepared by Casper, WY Branch

Client: Accutest Mountain States

Report Date: 07/15/11

Project: D24047X

Work Order: C11060329

Analyte	Count Result	Units	RL %REC	Low Limit	High Limit	RPD	RPDLimit Qual
Method: E900.0							Batch: GrAB-1105
Sample ID: MB-GrAB-1105	6 Method Blank			Run: G542	M_110623A		06/29/11 22:25
Gross Alpha	-1.54	pCi/L					U
Gross Alpha precision (±)	0.705	pCi/L					
Gross Alpha MDC	1.37	pCi/L					
Gross Beta	-0.165	pCi/L					U
Gross Beta precision (±)	1.51	pCi/L					
Gross Beta MDC	2.54	pCi/L					
Sample ID: Th230-GrAB-1105	Laboratory Co	ontrol Sample		Run: G542l	M_110623A		06/29/11 22:25
Gross Alpha	87.8	pCi/L	87	80	120		
Sample ID: Cs137-GrAB-1105	Laboratory Co	ontrol Sample		Run: G542	M_110623A		06/29/11 22:25
Gross Beta	86.4	pCi/L	99	80	120		
Sample ID: C11060153-001DMS	Sample Matri	x Spike		Run: G542l	M_110623A		06/29/11 22:25
Gross Alpha	111	pCi/L	109	70	130		
Sample ID: C11060153-001DMSI	Sample Matri	x Spike Duplicate		Run: G542	M_110623A		06/29/11 22:25
Gross Alpha	128	pCi/L	125	70	130	14	17.1
Sample ID: C11060153-001DMS	Sample Matri	x Spike		Run: G542	M_110623A		06/29/11 22:25
Gross Beta	99.9	pCi/L	109	70	130		
Sample ID: C11060153-001DMSI	D Sample Matri	x Spike Duplicate		Run: G542	M_110623A		06/29/11 22:25
Gross Beta	99.2	pCi/L	108	70	130	0.7	15.7
Sample ID: C11060172-005DDUI	6 Sample Dupl	icate		Run: G542	M_110623A		07/01/11 03:37
Gross Alpha	210					13	19.2
Gross Alpha precision (±)	9.91	pCi/L					
Gross Alpha MDC	5.38	pCi/L					
Gross Beta	70.3	pCi/L				5.8	20.3
Gross Beta precision (±)	3.53	pCi/L					
Gross Beta MDC	4.13	pCi/L					

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



Prepared by Casper, WY Branch

Client: Accutest Mountain States

Report Date: 07/15/11

Work Order: C11060329

Project: D24047X							Work	Order	: C110603	29
Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E901.1									Batch	R147245
Sample ID: LCS-R147245	Lab	oratory Co	ntrol Sample			Run: GAM-	HPGE_110616A		06/16	/11 09:00
Potassium 40		1930	pCi/L	50	58	70	130			S
- LCS response for K40 is outside of	of the acceptar	ice range for	this analysis.							
Sample ID: MB-R147245	2 Me	thod Blank				Run: GAM-	HPGE_110616A		06/16	/11 09:00
Thorium 234		ND	pCi/L	50						U
Gross Gamma		ND	pCi/L	50						U
Sample ID: C11060770-002BD	UP 4 Sai	mple Duplic	ate			Run: GAM-	HPGE_110616A		06/16	/11 09:00
Bismuth 214		67.9	pCi/L	50				18	20	
Potassium 40		830	pCi/L	50				0.7	20	
Potassium 40 precision (±)		134	pCi/L							
Gross Gamma		1010	pCi/L	50				8.1	20	

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

Prepared by Casper, WY Branch

Client: Accutest Mountain States

Report Date: 07/15/11

Project: D24047X

Work Order: C11060329

Trojecti ==										
Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA	226-5447
Sample ID: C11060145-077AMS	Sa	mple Matrix	: Spike			Run: TENN	ELEC-3_110623	Ē	07/14	/11 01:56
Radium 226		32	pCi/L		115	70	130			
Sample ID: C11060145-077AMSE) Sa	mple Matrix	Spike Duplicate			Run: TENN	IELEC-3_110623	≣	07/14	/11 01:56
Radium 226		29	pCi/L		103	70	130	9.8	20.2	
Sample ID: MB-RA226-5447	3 Ме	ethod Blank				Run: TENN	IELEC-3_110623	Ξ.	07/14	/11 01:56
Radium 226		0.14	pCi/L							U
Radium 226 precision (±)		0.12	pCi/L							
Radium 226 MDC		0.17	pCi/L							
Sample ID: LCS-RA226-5447	La	boratory Co	ntrol Sample			Run: TENN	IELEC-3_1106231	Ē	07/14	/11 01:56
Radium 226		12	pCi/L		93	85	115			

Prepared by Casper, WY Branch

Client: Accutest Mountain States

Report Date: 07/15/11

Project: D24047X

Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E908.0								В	atch: RA-TH-	ISO-1416
Sample ID: LCS-RA-TH-ISO-1416	i La	boratory Cor	ntrol Sample			Run: ALPH	ANALYST_110	628A	06/30/	/11 10:26
Thorium 230		6.2	pCi/L		105	70	130			
Sample ID: C11060669-005EMS	Sa	ample Matrix	Spike			Run: ALPH	ANALYST_110	628A	06/30	/11 10:26
Thorium 230		11	pCi/L		92	70	130			
Sample ID: C11060669-005EMSE) Sa	ample Matrix	Spike Duplicate			Run: ALPH	ANALYST_110	628A	06/30	/11 10:26
Thorium 230		12	pCi/L		100	70	130	7.9	38.7	
Sample ID: MB-RA-TH-ISO-1416	3 M	ethod Blank				Run: ALPH	ANALYST_110	628A	06/30	/11 10:26
Thorium 230		0.033	pCi/L							U
Thorium 230 precision (±)		0.077	pCi/L							
Thorium 230 MDC		0.19	pCi/L							
Method: E908.0									Batch: RA-U-	ISO-0462
Sample ID: LCS-RA-U-ISO-0462	2 La	aboratory Co	ntrol Sample			Run: EGG-	ORTEC_11070	5C	07/07	/11 13:55
Uranium 234		11.3	pCi/L		102	70	130			
Uranium 238		12.2	pCi/L		108	70	130			
Sample ID: C11061131-001CMS	2 S	ample Matrix	Spike			Run: EGG-	ORTEC_11070	5C	07/07	/11 13:55
Uranium 234		31.0	pCi/L		101	70	130			
Uranium 238		26.9	pCi/L		97	70	130			
Sample ID: C11061131-001CMSI	2 S	ample Matrix	Spike Duplicate			Run: EGG-	ORTEC_11070	5C	07/07	/11 13:55
Uranium 234	0.	33.3	pCi/L		111	70	130	7.4	33.6	
Uranium 238		29.0	pCi/L		105	70	130	7.4	34.3	
Sample ID: MB-RA-U-ISO-0462	6 M	ethod Blank				Run: EGG-	ORTEC_11070	5C	07/07	/11 13:55
Uranium 234		-0.0120	pCi/L							U
Uranium 234 precision (±)		0.0459	pCi/L							
Uranium 234 MDC		0.131	pCi/L							
Uranium 238		-0.00801	pCi/L							U
Uranium 238 precision (±)		0.0429	pCi/L							
Uranium 238 MDC		0.122	pCi/L							

Qualifiers:

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

U - Not detected at minimum detectable concentration

Prepared by Casper, WY Branch

Client: Accutest Mountain States

Report Date: 07/15/11

Project: D24047X

Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Lim	nit H	ligh Limit	RPD	RPDLimit	Qual
Method: E909.0										Batch: T_PB-	-210-0118
Sample ID: T11060059-004GMSE) Sai	mple Matrix	Spike Duplicate			Run: SU	B-T4	1013		06/27	/11 22:29
Lead 210		130	pCi/L		90	7	0	130	7.4	16.9	
Sample ID: T11060059-004GMS	Sai	mple Matrix	Spike			Run: SU	B-T4	1013		06/27	/11 21:23
Lead 210		120	pCi/L		84	7	0	130			
Sample ID: LCS-PB-210-0118	Lat	oratory Co	ntrol Sample			Run: SU	B-T4	1013		06/27	/11 03:47
Lead 210		51	pCi/L		96	7	0	130			
Sample ID: MB-PB-210-0118	3 Me	thod Blank				Run: SU	B-T4	1013		06/27	/11 02:41
Lead 210		-0.59	pCi/L								U
Lead 210 precision (±)		0.86	pCi/L								
Lead 210 MDC		1.5	pCi/L								

RL - Analyte reporting limit.

MDC - Minimum detectable concentration

ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration

Prepared by Casper, WY Branch

Client: Accutest Mountain States

Report Date: 07/15/11

Project: D24047X

Work Order: C11060329

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: RA-05	.,								Batch: RA	1228-3774
Sample ID: LCS-228-RA226-5447	Lab	oratory Cor	ntrol Sample			Run: G500	00W_110623C		07/08	/11 15:45
Radium 228		7.4	pCi/L		116	80	120			
Sample ID: MB-RA226-5447	3 Met	hod Blank				Run: G500	00W_110623C		07/08	/11 15:45
Radium 228		-0.38	pCi/L							U
Radium 228 precision (±)		0.87	pCi/L							
Radium 228 MDC		1.5	pCi/L							
Sample ID: C11060256-001AMS	Sam	nple Matrix	Spike			Run: G500	00W_110623C		07/08	/11 15:45
Radium 228		17	pCi/L		120	70	130			
Sample ID: C11060256-001AMSE) Sam	ple Matrix	Spike Duplicate			Run: G500	00W_110623C		07/08	/11 15:45
Radium 228		17	pCi/L		116	70	130	3.3	36.8	

RL - Analyte reporting limit. MDC - Minimum detectable concentration ND - Not detected at the reporting limit.

U - Not detected at minimum detectable concentration



Workorder Receipt Checklist

C11060329

Accutest Mountain States

Login completed by:	Corinne Wagner		Date	Received: 6/7/2011	
Reviewed by:	BL2000\cwagner		Re	ceived by: dw	
Reviewed Date:	6/9/2011			Carrier FedEx name:	
Shipping container/cooler in	good condition?	Yes 🗹	No 🗌	Not Present	
Custody seals intact on ship	pping container/cooler?	Yes 🔽	No 🗌	Not Present	
Custody seals intact on sam	ple bottles?	Yes	No 🗌	Not Present ✓	
Chain of custody present?		Yes ✓	No 🗌		
Chain of custody signed wh	en relinquished and received?	Yes 🗹	No 🗌		
Chain of custody agrees wit	h sample labels?	Yes ✓	No 🗌		
Samples in proper container	r/bottle?	Yes 🗹	No 🗌		
Sample containers intact?		Yes 🗹	No 🗌		
Sufficient sample volume fo	r indicated test?	Yes 🗹	No 🗌		
All samples received within	holding time?	Yes 🗸	No 🗌		
Container/Temp Blank temp	perature:	12.6℃			
Water - VOA vials have zero	o headspace?	Yes 🗀	No 🗌	No VOA vials submitted 🗸	
Water - nH acceptable upor	receipt?	Yes ✓	No 🗌	Not Applicable	

Contact and Corrective Action Comments:

None



06/17/11





Technical Report for

Hydrokinetics

ECCV DI-1 INJECTATE

Accutest Job Number: D24047

Sampling Date: 06/06/11

Report to:

Hydrokinetics 12975 West 24th Place Golden, CO 80401 pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 29



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

John Hamilton

Laboratory Director

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)
This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

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Sample Summary

Hydrokinetics

ECCV DI-1

Job No:

D24047

Sample	Collected	Matrix	Client	
Number	Date Time By	Received Code Type	Sample ID	
D24047-1	06/06/11 12:10 PO	06/06/11 AQ Water	DI-1	





CASE NARRATIVE / CONFORMANCE SUMMARY

Client:

Hydrokinetics

Job No

D24047

Site:

ECCV DI-1

Report Dat

6/17/2011 2:14:05 PM

On 06/06/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D24047 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method EPA 200.7

Matrix AQ

Batch ID: MP4876

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24047-1MS, D24047-1MSD were used as the QC samples for the metals analysis.
- The matrix spike and matrix spike duplicate (MS/MSD) recovery(s) of Barium are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike (MS) recovery(s) of Calcium, Sodium, Strontium, Magnesium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- D24047-1 for Arsenic: Elevated detection limit due to dilution required for possible matrix interference.

Metals By Method EPA 245.1

Matrix AQ

Batch ID: MP4883

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D23989-18MS, D23989-18MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D287

Matrix LIQ

Batch ID; GN10091

The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method EPA 300

Matrix DW

Batch ID: GP4609

- All samples were prepared and analyzed within the recommended method holding time
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method EPA 300/SW846 9056

Matrix AQ

Batch ID: GP4609

D24047-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

Matrix AQ

- Batch ID: GP4658
- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24084-1MS, D24084-1MSD were used as the QC samples for the Fluoride analysis.

Wet Chemistry By Method SM16 203

Matrix AQ

Batch ID: R 7782

The data for SM16 203 meets quality control requirements.

Wet Chemistry By Method SM20 2320B

Matrix AQ

Batch ID: GN9980

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24047-1DUP were used as the QC samples for the Alkalinity, Total as CaCO3 analysis.

Wet Chemistry By Method SM20 2340B

Matrix AQ

- The data for SM20 2340B meets quality control requirements.
- D24047-1 for Hardness, Calcium: Calculated as: (Calcium * 2.497) to convert to Calcium Carbonate

Wet Chemistry By Method SM20 2510B

Matrix AQ

Batch ID: GP4608

Sample(s) D24058-3DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix AQ

Batch ID: GN9921

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D24058-2DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Field Data By Method EPA 170.1

Matrix AQ

Batch ID: R7705

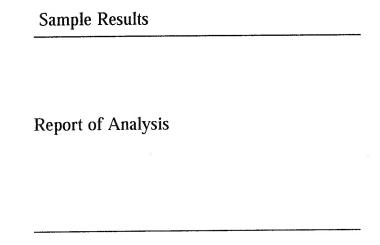
The data for EPA 170.1 meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.





Client Sample ID: Lab Sample ID:

DI-1

D24047-1

Matrix:

AQ - Water

Date Sampled: 06/06/11

Date Received: 06/06/11

Percent Solids: n/a

Project:

ECCV DI-1

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Antimony	< 30	30	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Arsenic ^a	< 130	130	ug/l	5	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Barium	539	10	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Beryllium	< 10	10	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Boron	923	50	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Cadmium	< 10	10	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Calcium	1270000	2000	ug/l	5	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Chromium	< 10	10	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Copper	< 50	50	ug/l	5	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Iron	< 70	70	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Lead	< 250	250	ug/l	5	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Magnesium	522000	200	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Manganese	< 5.0	5.0	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Mercury	< 0.10	0.10	ug/l	1	06/09/11	06/09/11 јв	EPA 245.1 ¹	EPA 245.1 ⁴
Molybdenum	62.0	10	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Nickel	< 30	30	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 3
Selenium	68.6	50	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Silver	< 30	30	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Sodium	1420000	2000	ug/l	5	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Strontium	27100	25	ug/l	5	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 3
Thallium	< 50	50	ug/l	5	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³
Zinc	< 30	30	ug/l	1	06/07/11	06/09/11 GJ	EPA 200.7 ²	EPA 200.7 ³

(1) Instrument QC Batch: MA1581 (2) Instrument QC Batch: MA1582 (3) Prep QC Batch: MP4876 (4) Prep QC Batch: MP4883

(a) Elevated detection limit due to dilution required for possible matrix interference.



Report of Analysis

Client Sample ID: DI-1

Lab Sample ID: Matrix:

D24047-1

Date Sampled: 06/06/11

AQ - Water

Date Received: 06/06/11 Percent Solids: n/a

06/06/11

SUB EPA 170.1

Project:

ECCV DI-1

General Chemistry

,							
Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Alkalinity, Total as CaCO3	2340	5.0	mg/l	1	06/13/11	JD	SM20 2320B
Chloride	2060	50	mg/l	100	06/07/11 12:31	JML	EPA 300/SW846 9056
Corrosivity, Langlier Index	2.2			1	06/13/11	JD	SM16 203
Density by Hydrometer	1.0051		g/ml	1	06/17/11	CJ	ASTM D287
Fluoride	24.8	2.0	mg/l	10	06/14/11 10:40	CB	EPA 300/SW846 9056
Hardness, Calcium a	3170	5.0	mg/l	5	06/09/11 21:15	GJ	SM20 2340B
Nitrogen, Nitrate	38.9	4.5	mg/l	100	06/07/11 12:31	JML	EPA 300/SW846 9056
Nitrogen, Nitrite b	< 6.1	6.1	mg/l	100	06/07/11 12:31	JML	EPA 300/SW846 9056
Solids, Total Dissolved	10300	10	mg/l	1	06/09/11	CJ	SM20 2540C
Specific Conductivity	10900	1.0	umhos/cm	1	06/07/11	JD	SM20 2510B
Sulfate	2480	50	mg/l	100	06/07/11 12:31	JML	EPA 300/SW846 9056
рН	7.21		su	1	06/06/11 15:30	JK	SM20 4500H
Field Parameters							

Deg. C

1

(a) Calculated as: (Calcium * 2.497) to convert to Calcium Carbonate

Temperature (Field) 20

⁽b) Elevated detection limit due to matrix interference.



Misc. Forms
Custody Documents and Other Forms
Includes the following where applicable: • Chain of Custody



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Street Actives	Street			В	illing in	formatio	n (If	differ	ont fr	rom	Repo	rt to)	1	0	3	₹	12	Š	3	Gress	ď			WW - SW - Surfi	Water face Water
Cumputy Plante Hydrocking information Hydrockine 7 ic3 Street Rabeles Lights w 2 4 th PL, City State Goddon & Sovel Probact Contact LATOBALEN PMB & Comcas Page 8	City				any Name	2 .							Mo] 5	1	Flum		Se	274		Thoulast 230,	0		SL-S	- Soli Sludge ediment
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Emergency & Rush T/A date available VIA Lablink	Sun	nple Custody m	ust be docu	nented b	olow es	ch_time s	sempl	les ch	ange	ė pos	\$8855	lon, ir	ıçludin	couri	er deli	very.				J. H.	8 QV	in lab		, L	
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D24047: Chain of Custody Page 1 of 2



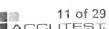


Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D24047	Client: HYDROKIN	TICS	immediate Client Service	s Action Required:	No
Date / Time Received: 6/6/2011	2:04:00 PM No. Cod	olers: 1	Client Service Action	Required at Login:	No
Project: DI-1			Airbill #'s: HD		
Cooler Security Y or 1. Custody Seals Present: Z 2. Custody Seals Intact: Z	3. COC Present: 4. Smpl Dates/Time OK		Sample Integrity - Documentation 1. Sample labels present on bottles: 2. Container labeling complete: 3. Sample container label / COC agree:	Y or N Ø	
	Y or N Infared gun Ice (bag) Y or N NVA C C C C C C C C C C C C C C C C C C C		Sample Integrity - Condition 1. Sample recvd within HT: 2. All containers accounted for: 3. Condition of sample: Sample Integrity - Instructions 1. Analysis requested is clear: 2. Bottles received for unspecified tests 3. Sufficient volume rec'd for analysis: 4. Compositing instructions clear: 5. Filtering instructions clear:	Y or N O Intact	<u>.N/A</u> SJ
Comments					
Accutest Laboratories V:(303) 425-6021		4036 Youngfi F: (303) 42	eld Street 5-6854	Wheat Ridge, CO www/accutest.com	

D24047: Chain of Custody

Page 2 of 2







Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4876 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

06/07/11

etal	RL	IDL	MDL	MB raw	final		
luminum	100	5.9	7.1				
ntimony	30	3.1	3.1	3.4	<30		
rsenic	25	5.9	5.9	3.0	<25		
arium	10	1.1	1.1	0.60	<10		
eryllium	10	. 44	1.8	-0.60	<10		
oron	50	4.8	4.8	-2.0	<50		
admium	10	.27	.62	0.20	<10		
alcium	400	9.6	28	19.9	< 400		
hromium	10	.18	.42	0.40	<10		
obalt	5.0	.35	. 4				
opper	10	.85	1.9	1.4	<10		
ron	70	3.4	5.5	53.0	< 70		
ead	50	1.6	1.8	3.6	<50		
ithium	2.0	.28	. 46				
lagnesium	200	5.8	12	19.9	<200		
langanese	5.0	.053	.28	1.1	<5.0		
Molybdenum	10	. 45	1.1	2.7	<10		
lickel	30	.43	.96	-0.20	<30		
hosphorus	100	11	12				
Potassium	1000	55	130				
Selenium	50	3.8	5.7	0.70	<50		
Silicon	50	3.8	3.8				
Silver	30	.18	.56	0.20	<30		
Sodium	400	110	110	16.8	<400		
Strontium	5.0		.17	0.10	<5.0		
Thallium	10	2.9	2.9	5.9	<10		
in	50	5.5	1.5				
Fitanium	10	.11	.17				
]ranıum	50	1.5	1.9				
Vanadium	10	.16	.18				
Zinc	30	.28	1.4	11.8	<30		

Associated samples MP4876: D24047-1

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits



5.1.1

BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4876 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:
Metal

(anr) Analyte not requested

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4876 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

06/07/11

Metal	D24047-1 Original	MS	Spikelot MPICPALL	Rec	QC Limits
Aluminum		· · · · · · · · · · · · · · · · · · ·			
Antimony	17.4	1040	1000	102.3	70-130
Arsenic	0.00	1140	1000	114.0	70-130
Barium	539	1490	2000	47.6N(a)	70-130
Beryllium	3.2	492	500	97.8	70-130
Boron	923	2040	1000	111.7	70-130
Cadmium	1.3	536	500	106.9	70-130
Calcium	1270000	1260000	25000	-40.0(b)	70-130
Chromium	0.0	472	500	94.4	70-130
Cobalt	anr				
Copper	5.0	520	500	103.0	70-130
Iron	56.4	4990	5000	98.7	70-130
Lead	8.0	947	1000	93.9	70-130
Lithium					
Magnesium	522000	533000	25000	44.0 (b)	70-130
Manganese	2.2	466	500	92.8	70-130
Molybdenum	62.0	556	500	98.8	70-130
Nickel	13.8	437	500	84.6	70-130
Phosphorus					
Potassium	anr				
Selenium	68.6	1150	1000	108.1	70-130
Silicon					
Silver	0.0	228	200	114.0	70-130
Sodium	1420000	1400000	25000	-80.0(b)	70-130
Strontium	27100	26700	500	-80.0(b)	70-130
Thallium	20.5	975	1000	95.5	70-130
Tin					
Titanium					
Veanium					
Vanadium					
Zinc	14.1	457	500	88.6	70-130
Associated sa		076 0710	47 1:		

Results < IDL are shown as zero for calculation purposes () Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4876 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits

 (N) Matrix Spike Rec. Outside of QC limits
 (anr) Analyte not requested
 (a) Spike recovery indicates possible matrix interference.
 (b) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery Information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4876 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

06/07/11

Prep Date:					06/07/1	11
Metal	D24047-1 Original	MSD	Spikelot MPICPALL	4 Rec	MSD RPD	QC Limit
Aluminum						
Antimony	17.4	1050	1000	103.3	1.0	20
Arsenic	0.00	1150	1000	115.0	0.9	20
Barium	539	1730	2000	59.6N(a)	14.9	20
Beryllium	3.2	496	500	98.6	0.8	20
Boron	923	2050	1000	112.7	0.5	20
Cadmium	1.3	548	500	109.3	2.2	20
Calcium	1270000	1270000	25000	0.0 (b)	0.8	20
Chromium	0.0	477	500	95.4	1.1	20
Cobalt	anr					
Copper	5.0	515	500	102.0	1.0	20
Iron	56.4	5070	5000	100.3	1.6	20
Lead	8.0	965	1000	95.7	1.9	20
Lithium						
Magnesium	522000	554000	25000	128.0	3.9	20
Manganese	2.2	470	500	93.6	0.9	20
Molybdenum	62.0	568	500	101.2	2.1	20
Nickel	13.8	446	500	86.4	2.0	20
Phosphorus						
Potassium	anr					
Selenium	68.6	1160	1000	109.1	0.9	20
Silicon						
Silver	0.0	230	200	115.0	0.9	20
Sodium	1420000	1450000	25000	120.0	3.5	20
Strontium	27100	27900	500	160.0(b)	4.4	20
Thallium	20.5	983	1000	96.3	0.8	20
Tin						
Titantum						
Uranium						
Vanadium						
Zinc	14.1	469	500	91.0	2.6	20
Associated sa	mples MP4	876: D240	47-1			

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4876 Matrix Type: AQUEOUS

Methods: EPA 200.7 Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits (anr) Analyte not requested

(a) Spike recovery indicates possible matrix interference.
(b) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4876 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

06/07/11

Moral	BSP	Spikelot MPICPALL		QC Limits
Metal	Pesult	METCEARP	e vee	James 5
Aluminum			00 5	0E11E
Antimony	985	1000	98.5	85-115
Arsenic	1050	1000	105.0	85-115
Barium	2020	2000	101.0	85-115
Beryllium	537	500	107.4	85-115
Boron	1090	1000	109.0	85-115
Cadmium	518	500	103.6	85-115
Calcium	28000	25000	112.0	85-115
Chromium	501	500	100.2	85-115
Cobalt	anr			
Copper	504	500	100.8	85-115
Iron	5250	5000	105.0	85-115
Lead	1060	1000	106.0	85-115
	2000			
Lithium	27200	25000	108.8	85-115
Magnesium		500	99.8	85-115
Manganese	499			85-115
Molybdenum	514	500	102.8	
Nickel	500	500	100.0	85-115
Phosphorus				
Potassium	anı			
Selenium	1140	1000	114.0	85-115
Silicon				
Silver	207	200	103.5	85-115
Sodium	27100	25000	108.4	85-115
Strontium	519	500	103.8	85-115
Thallium	1060	1000	106.0	85-115
Tin				
Titanium				
Uranium				
Vanadium	517	F.00	103 4	95-115
Zinc				007113
Associated s				
Pesults & ID	L are show	wn as zero	for cal-	culation p

Pesults < IDL are shown as zero for calculation purposes () Outside of QC limits



SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24047 Account: HYDRCOG - Hydroxinetics Project: ECCV DI-1

QC Batch ID: MP4876 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

w

BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: D24047 Account: HYDHCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4883 Matrix Type: AQUEOUS Methods: EPA 245.1 Units: ug/l

Prep Date:

06/09/11

ricp mico.					
				MB	
Metal	RL	IDL	MDL	raw	final
Mercury	0.10	011	.014	-0.015	<0.10

Associated samples MP4883: D24047-1

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4883 Matrix Type: AQUEOUS

Methods: EPA 245.1 Units: ug/l

Prep Date:

06/09/11

Metal	D23989 Origin		Spikelo HGWSR1	t ¶ Rec	QC Limits	
Mercury	0.0	3.3	3.13	105.6	70-130	

Associated samples MP4883: D24047-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4883 Matrix Type: AQUEOUS

Methods: EPA 245.1 Units: ug/l

Prep Date:

06/09/11

Metal	D23989 Origin	-18 al MSD	Spikelo HGWSR1	t Rec	MSD RPD	QC Limit	
Mercury	0.0	3.3	3.13	105.6	0.0	20	

Associated samples MP4883: D24047-1

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

5.2.3

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP4883 Matrix Type: AQUEOUS Methods: EPA 245.1 Units: ug/1

Prep Date:

06/09/11

Associated samples MP4883: D24047-1

Results < IDL are shown as zero for calculation purposes (*) Outside of QC limits (anr) Analyte not requested

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP Recov	QC Limits
Alkalinity, Total as CaCO3	GN9980	5.0	0.0	mg/l	1000	1010	101.1	90-110%
Bromide	GP4609/GN9895	0.050	0.0	mg/l	20	20.2	101.0	90-110%
Bromide	GP4658/GN10003	0.20	0.0	mg/l	20	20.1	100.5	90-110%
Chloride	GP4609/GN9895	0.50	0.0	mg/1	20	19.3	96.5	90-110%
Chloride	GP4658/GN10003	0.50	0.0	mg/l	20	18.5	92.5	90-110%
Fluoride	GP4658/GN10003	0.20	0.0	mg/l	10	9.86	98.6	90-110*
Nitrogen, Nitrate	GP4609/GN9895			mg/l	4.52	4.48	99.2	90-110%
Vitrogen, Nitrate	GP4658/GN10003	0.045	0.0	mg/l	4.52	4.60	101.8	90-110%
Nitrogen, Nitrite	GP4609/GN9895			mg/1	6.09	5.93	97.4	90-110%
Nitrogen, Nitrite	GP4658/GN10003	0.061	0.0	mg/1	6.09	6.40	105.1	90-110
Solids, Total Dissolved	GN9921	10	0.0	mg/l	400	426	106.5	90-110%
Specific Conductivity	GP4608/GN9888			umhos/cm	98.7	93.6	94.8	90-110%
Sulfate	GP4609/GN9895	0.50	0.0	mg/1	30	28.6	95.3	90-110%
Sulfate	GP4658/GN10003	0.50	0.0	mg/l	30	29.7	99.0	90-110%
pH	GN9871			su	8.00	7.96	99.5	99.3-100

Page 1

Associated Samples: Batch GN9871: D24047-1 Batch GN9921: D24047-1 Batch GN9980: D24047-1 Batch GP4608: D24047-1 Batch GP4699: D24047-1 Batch GP4658: D24047-1 (*) Outside of QC limits

DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN9980	D24047-1	mg/l	2340	2320	1.0	0-20%
Solids, Total Dissolved	GN9921	D24058-2	mg/l	72.0	86.0	17.7	0-25%
Specific Conductivity	GP4608/GN9888	D24058-3	umhos/cm	521	518	0.6	0-20%

Associated Samples: Batch GN9921: D24047-1 Batch GN9980: D24047-1 Batch GP4608: D24047-1 (*) Outside of QC limits

.2

MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

. Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP4609/GN9895	D24084-2	mg/l	0.0	5	5.5	110.0	80-120%
Bromide	GP4658/GN10003	D24084-1	mg/l	0.0	2.5	2.5	100.0	80-120%
Chloride	GP4609/GN9895	D24084-2	mg/l	14.9	20	35.8	104.5	80-120%
Chloride	GP4658/GN10003	D24084-1	mg/l	11.2	10	22.0	108.0	80-120%
Fluoride	GP4658/GN10003	D24084-1	mg/l	0.065	2.5	2.5	97.4	80-120%
Nitrogen, Nitrate	GP4609/GN9895	D24084-2	mg/1	0.071	1.13	1.3	108.8	80-120%
Nitrogen, Nitrate	GP4658/GN10003	D24084-1	mg/l	0.0	0.565	0.60	106.2	80-120%
Nitrogen, Nitrite	GP4609/GN9895	D24084-2	mg/l	0.0	0.609	0.63	103.4	80-120%
Nitrogen, Nitrite	GP4658/GN10003	D24084-1	mg/1	0.0	0.305	0.33	108.4	80-120%
Sulfate	GP4609/GN9895	D24084-2	mg/l	1.6	20	22.6	105.0	80-120%
Sulfate	GP4658/GN10003	D24084-1	mg/l	1.5	10	11.4	99.0	80-120%

Associated Samples:
Batch GP4609: D24047-1
Batch GP4658: D24047-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D24047 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP4609/GN9895	D24084-2	mg/1	0.0	5	5.4	1.8	20%
Bromide	GP4658/GN10003	D24084-1	mg/l	0.0	2.5	2.5	0.0	20%
	GP4609/GN9895	D24084-2	mq/l	14.9	20	35.3	1.4	20%
Chloride	GP4658/GN10003	D24084-1	mg/l	11.2	10	22.3	1.4	20%
Chloride	GP4658/GN10003	D24084-1	mg/l	0.065	2.5	2.4	4.1	20%
Fluoride	GP4609/GN9895	D24084-2	mg/l	0.071	1.13	1.3	0.0	20+
Nitrogen, Nitrate	GP4658/GN10003	D24084-1	mg/l	0.0	0.565	0.58	3.4	20%
Nitrogen, Nitrate	GP4609/GN9895	D24084-2	mq/1	0.0	0.609	0.61	3.2	20
Nitrogen, Nitrite	GP4658/GN10003	D24084-1	mg/1	0.0	0.305	0.34	3,0	20%
Nitrogen, Nitrite	GP4609/GN9895	D24084-2	mg/1	1.6	20	22.2	1.8	20%
Sulfate Sulfate	GP4658/GN10003	D24084-1	mg/l	1.5	10	11.4	0.0	201

Associated Samples:
Batch GP4609: D24047-1
Batch GP4658: D24047-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

INJECTION WELL COMPLETION REPORT FORM 7520-9--EAST CHERRY CREEK VALLEY WATER AND SANITATION DISTRICT WELL DI-1

Prepared for the Environmental Protection Agency

Prepared by Hydrokinetics, Inc. July 22, 2011

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I. Geologic Information

- 1. Lithology and Stratigraphy
 - A. Geologic Information of Units Penetrated

A description of the rock units penetrated by the well is presented in the attached Lithology Strip Log (pocket) and in the Table 1 below.

Table 1. Geologic Description of Rock Units Penetrated by Well.

Period	Geologic Unit	Depth (ft.)	Thickness (ft.)	Description
Quaternary	Alluvium	0-60	60	Unconsolidated sand, silt, clay and gravel
Cretaceous	Arapahoe	60-616	556	Tan to gray sandstone and conglomerate, some shale and coal.
Cretaceous	Laramie-Fox Hills	616-1728	1112	Tan to gray sandstone, with dark shale and thin coal
Cretaceous	Pierre SH	1728-7130	5402	Gray to black shale, some sandstone layers
Cretaceous	Niobrara	7130-7556	426	Gray to brown shale
Cretaceous	Fort Hays LS (in Niobrara)	7530-7556	26	Gray limestone interbedded with shale
Cretaceous	Greenhorn	7556-7925	369	Gray-black, shale and limestone
Cretaceous	Dakota GP	7925-8325	400	Tan, gray, white sandstone, siltstone and shale
Cretaceous	J Sandstone (in Dakota GP)	7987-8050	63	Clear to white sandstone, with rare shale layers
Cretaceous	Dakota SS (in Dakota GP)	8152-8325	173	Clear to white sandstone, with rare shale layers
Jurassic	Morrison	8325-8488	163	Tan and maroon sandstone and siltstone
Jurassic	Entrada SS	8488-8683	195	White sandstone, some anhydrite and shale
Permian	Lykins	8683-9150	467	Red shale and siltstone, with anhydrite at base
Permian	Lyons	9150-9268	118	White to pink sandstone
Permian	L. Satanka	9268-9525	257	Red shale and sandstone with blue-white dolomite layers
Permian	Wolfcamp	9525-9663	138	Gray dolomite, sandstone, shale, and limestone
Permian	Amazon	9663-9702	39	White to blue limestone and dolomite
Permian	Council Grove	9702-9758	56	White to red limestone and dolomite with some sandstone shale layers
Pennsylvanian	Admire	9802-9934	132	White to red limestone and dolomite with some shale
Pennsylvanian	Virgil	9934-10002	68	White to red limestone and dolomite
Pennsylvanian	Missouri(an)	10002-10220	218	White to pink limestone and dolomite
Pennsylvanian	Fountain	10220-10271	51	Red sandstone and dolomite

Missouri unit also referred to as Missourian.

B. Detailed Description of Injection Units

Four geologic units were perforated and will received injected fluids. These are the Lyons, Wolfcamp, Amazon/Council Grove, and Missourian. With the approval of EPA personnel, the Amazon and Council Grove Formations were combined into one injection unit because they are relatively thin, adjacent to each other and have similar geology. A summary of these units and requested data are provided in Table 2. Note that fracture pressure was never reached on any of the formations. The requested depth, thickness, geologic age, and lithology are provided in Table 1.

Table 2. Summary of Downhole Data for Injection Units.

Injection Unit	Lyons	Wolfcamp	Amazon/ Council Grove	Missourian
Formation Fluid Pressure (psi)	3990	4150	3600	3810
Avg. Porosity (percent)	6	5	5	8
Estimated Permeability (md)	5-10	1-5	5-10	1-5
Fracture Pressure (psi)	greater than 1254	greater than 2460	greater than 2370	greater than 2880
Bottom Hole Temperature (F)	NA	NA	NA	284
Bottom Hole Pressure (psi)	NA	NA	NA	3880

C. Formation Chemistry

After each of the four zones was perforated, they were swabbed until the specific conductivity of the water removed from the unit was stable for at least three consecutive swab runs. At that time, the sample was considered to be representative of the formation fluid. At that point, a sample was secured and tested in the laboratory for TDS, pH, specific conductivity and specific gravity as required by the permit. Although not required, we were able to test some of the samples for additional inorganics, including some major cations, anion, and some metals. The original laboratory results are attached in Appendix 1C at the end of this report. The water quality data for the injection zones are summarized below in Table 3.

Table 3. Water Quality Summary in Injection Units (August-September, 2010)

Formation	LYONS	WOLFCAMP	COUNCIL GROVE/AMAZON	MISSOURIAN	units
Barium	152	807	1660		ug/l
Calcium	233000	118000	620000		ug/l
Iron	195000	40000	216000		ug/l
Magnesium	144000	12700	123000		ug/l
Manganese	2480	4140	4470		ug/l
Potassium	674000	8130000	574000		ug/l
Silicon (filtered)	26700	290	61700		ug/l
Sodium	4990000	248000	5120000		ug/I
Strontium	3290	2100	11100		ug/l
Stromann	3230	2100	11100		ω ₆ /1
Alkalinity, Bicarbonate as CaCO3	801	15	1270		mg/l
Alkalinity, Carbonate	<5.0	<5.0	<5.0		mg/l
Chloride	6160	8770	6380		mg/l
Fluoride	<20	4.9	262		mg/l
Nitrogen, Nitrate	4	<0.90	<1.1		mg/l
Phosphate Ortho	<1.3	<1.3	<1.6		mg/l
Redox Potential vs H2	259	NT	NT		mg/l
Silica, dissolved (filtered)	57.1	0.62	132		mg/l
TDS	17700	17900	15800	21000	mg/l
Specific conductivity	21100	25900	21100	30900	umhos/cm
Specific gravity by hydrometer	1.0151	1.0129	1.0129	1.0143	7
Sulfate	3200	356	2060		mg/l
Sulfide	6.1				mg/l
pH	6.61	6.02	6.47	7.74	-01

D. Freshwater aquifers

There are three freshwater (drinking-water) aquifers penetrated by well DI-1. The information in Table 4 is based on our experience with numerous wells in the Denver basin and Table 2.4 in the EPA Injection Well Permit for well DI-1. They aquifers include the alluvium, Arapahoe and Laramie-Fox Hills. The depth to the base of the lowermost freshwater aquifer is about 1728 feet. Data on these aquifers including average TDS values are presented in Table 4.

Table 4. Freshwater Aquifers.

Period	Geologic Unit	Depth (ft.)	Estimated TDS (ppm)	Thickness (ft.)	Description
Quaternary	Alluvium	0-60	750	60	Unconsolidated sand, silt, clay and gravel
Cretaceous	Arapahoe	60-616	800	556	Tan to gray sandstone and conglomerate, some shale and coal.
Cretaceous	Laramie-Fox Hills	616-1728	550	1112	Tan to gray sandstone, with dark shale and thin coal

II. Well Design and Construction

1. Casing and Tubing

Surface and long string casing were installed and cemented in well DI-1. A permanent packer was then set inside the long string on tubing. The casing and tubing data are provide in Table 5 and in the As-Built diagram (pocket).

Table 5. Casing, Tubing Data.

	Surface Casing	Long String Casing	Tubing
Material	steel	steel	steel
Diameter (in.)	9 5/8	7	4 1/2
Grade	J55 STC	-80 LTC	-80 LTC with internal coating TK-805
Weight (ppf)	36	26	11.6
Setting Depth (ft.)	1473	10,248	9,052

2. Cement

All cement was placed using the Halliburton method and is summarized in Table 6.

Table 6. Cementing Data.

	Depth (ft.)	Depth (ft.) Cement Type		Amount (sacks)	
Long String, 1st stage	7750-10,248	Class G	15.8	456	
Long String, 2 nd stage	2382-7750	Class G	15.8	415	
Long String, 3 rd stage	GL-2382	Class G	15.3	739	
Surface Casing	GL-1473	Class G + 2% Calcium	15.8	875	

3. Packer.

A 7 inch x 4 inch (model 23-32) Permpac Permanent Seal Bore Packer with 9-chrome mandrel and a wireline re-entry guide on the end of the 4.5 inch tubing was set at 9052 feet. It is engaged against the 7 inch casing. Water (300 barrels) mixed with 55 gallons of Endura CI811 Packer Fluid and 10 gallons of Novacide 1025 Biocide was place in the casing-tubing annulus.

4. Centralizers

32 steel centralizers were set on the surface casing (9 5/8-inch), evenly spaced from ground level to 1473 feet. 150 steel centralizers were set on the long string (7-inch) casing from ground level to 10,248 feet.

5. Bottom Hole Completions

Not applicable.

6. Well Stimulations

Not applicable.

III. Description of Surface Equipment

The surface equipment is currently being installed. A portion of the construction plans relevant to the injection well are attached. In general, water coming from a wellfield will be pumped to a treatment facility. In the treatment plant the water is first filtered, run through a reverse osmosis membrane (module), run through a second brine concentration module and into the well. Prior to injection, hydrochloric acid will added to the brine to bring the solution to a pH of 7. The purpose of reducing the pH is to minimize mineral precipitation downhole, which could plug well perforations.

Attached are diagrams that show the site layout, hardware, and operations of the surface equipment, including:

G-5 Process Flow Diagram
MA-1 Overall Layout
IA-1 Notes and Abbreviations
C-6 Yard Piping I
C-10 Yard Piping II
C-11 Yard Piping III

IV. Monitoring Systems

1. Pressure and temperature gauges, flow measurements, and shutdown procedures.

The flowpath of the water/brine as it moves from the wellfield to the injection well, along with flowmeter locations, is shown in the diagrams presented in Section III above. Locations of valving, pressure/temperature gauges, and flowmeter are show in the attached Process and Instrumentation Diagram IA-3B (pocket). The abbreviations on this diagram are explained on Sheet IA-1 (pocket.

A summary of the emergency shutdown procedure is presented below.

Emergency Shutdown Procedures

Pumping into the injection well will be automatically shut down when either of the following two conditions occur. The first is when the injection pressure at the well head becomes greater than the maximum allowable pressure of 3120 psi. The second is when a 20% change occurs in the pressure in the tubing-casing annulus. The target pressure in the TCA will initially be set at 100 psi. A change in pressure in the TCA indicates a leak in the tubing, casing or packer.

The system will also shut down automatically by the VFD if any of the following occur:

Low suction pressure High injection pressure High temperature High amperage on the pump motors Communication failure (loss of signal) Loss of electrical phase

When any of these conditions occur the following sequence will be initiated.

- *A 0-15 second timer with an operator setpoint starts
- *If the pressure drops below 3120 psi or the TCA pressure returns to between 80 and 120 psi the timer resets and operations continue
- *If the timer reaches the setpoint and the pressures remain above the setpoint the normal pump shutdown sequence begins.
- *The injection pump VSD begins a normal gradual decrease in speed from 60 hz to 30 hz in 15-30 seconds as determined by the pump supplier and operator.
- *When the minimum VSD speed is reached the pump stops. The flow into the well also stops and the wellhead pressure gradually decreases as the injection fluid dissipates into the formation.
- *When the wellhead pressure reaches 0 psi, the operator and service personnel can diagnose and make repairs as needed.

All pressure, temperature and flow measurements are monitored continuously and recorded electronically. Data will be recorded daily, at a minimum. If necessary, especially during troubleshooting, the data can be recorded as fast as every 1.5 seconds.

V. Logging and Testing Results

Geophysical logs, as required, are provided in the pocket at the back of this report. Included are:

Dual Induction log (with caliper, porosity, SP, and resistivity surveys), cement bond log for surface hole/casing

Dual Induction log (with caliper, porosity, SP, and resistivity surveys), cement bond log for longstring hole/casing

Two temperature logs for longstring casing in the perforated zones.

As drilling proceeded, vertical deviation surveys (in degrees) were taken on a regular basis (see Table 7).

Table 7. Vertical Wellbore Deviation Surveys.

Depth, ft.	Degrees	Depth, ft.	Degrees	Depth, ft.	Degrees	Depth, ft.	Degrees
259	.3	4419	3.3	6897	2.4	8660	.2
528	.4	4667	3.4	7144	2.7	8846	.7
743	.2	4883	3.0	7393	2.8	9092	2.0
928	.7	4946	2.6	7485	2.3	9278	2.2
1239	.8	5193	2.5	7578	1.5	9340	1.8
1479	.8	5441	2.4	7889	.9	9650	.9
1546	.7	5626	2.1	8044	.9	9843	.6
1731	.7	5688	2.0	8259	.5	10030	.5
1947	.7	5936	1.5	8414	.4	10270	.4
2412	.6	6649	1.6	8476	.3		

Step test results were conducted on all four perforated zones, and on the entire perforated sections. The results are provided in Appendix V, Logging and Testing Results.

VI. As-Built Diagrams

The As-Built diagrams of the well and wellhead are attached (pocket). A 0-200 psi range pressure gauge will be installed to monitor the tubing-casing pressure.

VII. Mechanical Integrity

The mechanical integrity of the well has been demonstrated using the cement bond log. The log has been reviewed and the wells's integrity has been approved by EPA personnel. The cement bond log is in the pocket at the back of this report.

VIII. Compatibility of Injectate with Injection Zone Fluids

A pilot-scale reverse osmosis treatment system was constructed and operated during June, 2011. We obtained and tested a sample of the treated fluid that is representative of the injectate that will be injected into well DI-1 (see Table 8). The required testing for radionuclides was also completed on this sample. Radionuclide results are provided in a separate file in Appendix VIII--Injectate Water Quality Data. The injectate has a TDS of 10,300 mg/l, is high in calcium, magnesium and sodium, with a pH of 7.21.

As shown in Table 3, the water in the injection units is similar to the injectate with said waters generally high in calcium, potassium, sodium, with TDS ranging from 15,800 to 21,000, and pH ranging between 6.02 and 7.74.

Accutest Mountain States	Table 8. Injectate Water Quality Summary. Jun 17, 2011 14:12 pm									
	D24047									
	Hydrokinetics									
	ECCV DI-1- INJECTATE									
Project Number:										
, 0,000	Legene	t:	Hit Control of the Co							
Client Sample ID:			DI-1							
Lab Sample ID:			D24047-1							
Date Sampled:			08/06/2011							
Matrix:			Water							
			Metals Analysis							
			-20							
Antimony	ug/l		<30 <130 ^a							
	ug/l									
	ug/i		539 <10							
	ug/l		923							
	ug/l		923 <10							
Cadmium	ug/l		1270000							
Calcium	ug/l		<10							
Chromium	ug/l		<50							
Copper	ug/l		<70							
ron	ug/l		<70 <250							
Lead	ug/l		522000							
Magnesium	ug/l		<5.0							
Manganese	ug/l		<0.10							
Mercury	ug/l		62.0							
Molybdenum	ug/l		<30							
Nickel	ug/l		68.6							
Selenium	ug/l		<30							
Silver	ug/l		1420000							
Sodium	ug/l ug/l		27100							
Strontium	ug/l		<50							
Thailium Zinc	ug/l		<30							
ZHIC	I~8,,									
			General Chemistry							
Alkalinity, Total as			2340							
CaCO3	mg/l									
Chloride	mg/l		2080							
Corrosivity, Langlier Index			2.2							
Density by Hydrometer	g/ml		1.0051							
Fluoride	mg/l		24.8							
Hardness, Calcium	mg/l		3170 ^{tr}							
Nitrogen, Nitrate	mg/l		38.9							
Nitrogen, Nitrite	mg/l		<6.1 °							
Solids, Total Dissolved	mg/l		10300							
Specific Conductivity	umhos/cm	Tanana ka	10900							
Sulfate	mg/l	1200	2480							
pH	su	2006	7.21							
			Field Data							
Temperature (Field)	Deg. C		20							
			Footnotes:							
	4 C	austed detect	tion limit due to dilution required for possible matrix interference.							

IX. Corrective Action in Area of Review

There are no defective wells requiring or undergoing corrective action in the area of review.

X. Anticipated Maximum Flow Rate and Pressure

We anticipate injecting at approximately 200 to 400 gallons per minute intermittently throughout any given year. The pressure during this injection will increase with time as the well plugs with precipitates and bacteria. We will likely clean the well every year or two to maximize flow through the perforations. The expected wellhead pressure during injection will generally be below 2000 psi. The maximum wellhead pressure will never exceed the MAIP of 3120 psi. The maximum flow into the well could be as high as 700 gpm, but this flow rate will likely only be maintained for very short periods.

Appendix 1C. Formation Water Quality Data









09/22/10



Technical Report for

Hydrokinetics

ECCV DI-1

LYONS

Accutest Job Number: D17121

Sampling Date: 09/03/10

Report to:

Hydrokinetics 12975 West 24th Place Golden, CO 80401 pwob@comcast.net

ATTN: Pat O'Brien

Total number of pages in report: 33



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

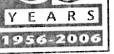
Jesse L. Smith
Laboratory Director

1 of 33

Client Service contact: Shea Greiner 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.



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-1-

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Sample Summary

Hydrokinetics

ECCV DI-1

Job No:

D17121

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
D17121-1	09/03/10	16:15 PO	09/03/10	AQ	Water	DI-1 LYONS
D17121-1A	09/03/10	16:15 PO	09/03/10	AQ	Water	DI-1 LYONS
D17121-1F	09/03/10	16:15 PO	09/03/10	AQ	Water Filtered	DI-1 LYONS



CASE NARRATIVE / CONFORMANCE SUMMARY

Client:

Hydrokinetics

Job No

D17121

Site:

ECCV DI-1

Report Dat

9/22/2010 8:34:52 AM

On 09/03/2010, one (1) samples, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 4.0°C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D17121 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method EPA 200.7

Matrix AQ

Batch ID: MP2890

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17116-1MS and D17116-1MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery of Silicon is outside control limits. The spike amount is low relative to the sample amount. Refer to the lab control or spike blank for recovery information.

Wet Chemistry By Method ASTM D287

Matrix ALL

Batch ID: GN6257

The data for ASTM D287 meets quality control requirements.

Wet Chemistry By Method ASTM E1498-76

Matrix AQ

Batch ID: M:GN32793

- The data for ASTM E1498-76 meets quality control requirements.
- The following samples were run outside of holding time for method ASTM E1498-76: D17121-1
- Redox Potential Vs H2: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method EPA 300/SW846 9056

Matrix AQ

Batch ID: GP2726

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17031-1MS and D17031-1MSD were used as the QC samples for the anion analysis.
- Sample D17121-1 for ortho-Phosphate: The reporting limit (RL) was raised due to matrix interference.

Matrix AQ

Batch ID: GP2759

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17263-7MS and D17263-7MSD were used as the QC samples for the anion analysis.

Matrix AQ

Batch ID: GP2800

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17246-1MS and D17246-1MSD were used as the QC samples for the Fluoride analysis.

Wet Chemistry By Method SM20 2320B

Matrix AQ

Batch ID: GN6293

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix AQ

Batch ID: GN6294

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SM20 2510B

Matrix AQ

GP2746 Batch ID:

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample D17084-1DUP was used as the QC sample for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix AQ

Batch ID: GN6244

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample D17050-2DUP was used as the QC sample for the Total Dissolved Solids analysis.

Wet Chemistry By Method SM20 4500H

Matrix AQ

Batch ID:

GN6265

The following samples were run outside of holding time for method SM20 4500H: D17121-1

Wet Chemistry By Method SM20 4500S2 CF

Matrix AQ

Batch ID: GN6248

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Samples D17080-1DUP and D17084-1MS were used as the QC samples for the Sulfide analysis.

Wet Chemistry By Method SW846 6010B

Matrix AQ

Batch ID: R4417

- The data for SW846 6010B meets quality control requirements.
- Dissolved Silica: Calculated as: (Silicon * 2.139)

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.





SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:

Accutest Mountain States

Job No

D17121

Site:

HYDRCOG: ECCV DI-1

Report Date

9/20/2010 5:00:54 PM

1 Sample was collected on 09/03/2010 and were received at Accutest on 09/03/2010 properly preserved, at 1.2 Deg. C and intact. These Samples received an Accutest job number of D17121. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method ASTM E1498-76

Matrix: AQ

Batch ID: GN32793

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(D17121).

Sample(s) D17121-1DUP were used as the QC samples for Redox Potential Vs H2.













Sample	Results
--------	---------

Report of Analysis



Report of Analysis

Page 1 of 1

Client Sample ID: DI-1 LYONS Lab Sample ID: Matrix:

D17121-1

Date Sampled: 09/03/10 Date Received: 09/03/10

AQ - Water

Percent Solids: n/a

Project:

ECCV DI-1

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium Calcium Iron Magnesium Manganese Potassium Sodium Strontium	152 233000 195000 144000 2480 674000 4990000 3290	10 400 70 200 5.0 1000 4000 5.0	ug/l ug/l ug/l ug/l ug/l ug/l ug/l	1 1 1 1 1 1 10 1	09/15/10 09/15/10 09/15/10 09/15/10 09/15/10 09/15/10	09/16/10 JM 09/16/10 JM 09/16/10 JM 09/16/10 JM 09/16/10 JM 09/16/10 JM 09/17/10 JM 09/16/10 JM	EPA 200.7 ¹ EPA 200.7 ² EPA 200.7 ² EPA 200.7 ¹	EPA 200.7 3 EPA 200.7 3

(1) Instrument QC Batch: MA984 (2) Instrument QC Batch: MA986 (3) Prep QC Batch: MP2890

 $RL = Reporting \ Limit$



Client Sample ID: DI-1 LYONS Lab Sample ID:

D17121-1

AQ - Water

09/03/10 Date Sampled: Date Received:

Percent Solids: n/a

09/03/10

Project:

Matrix:

ECCV DI-1

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	Ву	Method
Alkalinity, Bicarbonate as CaC Alkalinity, Carbonate Chloride Fluoride Nitrogen, Nitrate Phosphate, Ortho ^a Redox Potential Vs H2 ^b Specific Conductivity Specific Gravity by Hydromet Sulfate Sulfide	< 5.0 6160 < 20 4.0 < 1.3 259 21100	5.0 5.0 250 20 0.90 1.3 1.0	mg/l mg/l mg/l mg/l mg/l my/l mv umhos/cm	1 1 500 100 20 20 1 1 1 500	09/09/10 09/09/10 09/10/10 21:36 09/17/10 13:51 09/03/10 18:04 09/03/10 18:04 09/08/10 09/09/10 09/07/10 09/10/10 21:36 09/07/10	GH JML JML AMA JK CJ JML JD	SM20 2320B SM20 2320B EPA 300/SW846 9056 EPA 300/SW846 9056 EPA 300/SW846 9056 EPA 300/SW846 9056 ASTM E1498-76 SM20 2510B ASTM D287 EPA 300/SW846 9056 SM20 4500S2 CF
На	6.61		su	1	09/07/10 14:45	JD	SM20 4500H

(a) Elevated detection limit due to matrix interference.

(b) Analysis performed at Accutest Laboratories, Marlborough, MA.

Report of Analysis

Page 1 of 1

Client Sample ID: DI-1 LYONS Lab Sample ID:

D17121-1A

Date Sampled: 09/03/10 Date Received: 09/03/10

AQ - Water

Percent Solids: n/a

Project:

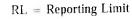
Matrix:

ECCV DI-1

General Chemistry

Method Ву Analyzed DF RLUnits Result Analyte

SM20 2540C 09/06/10 mg/l JK 1 Solids, Total Dissolved 10 17700



Report of Analysis

Page 1 of 1

Client Sample ID: DI-1 LYONS Lab Sample ID:

D17121-1F

AQ - Water Filtered

Date Sampled: 09/03/10

Date Received: 09/03/10 Percent Solids: n/a

Project:

Silicon

Matrix:

ECCV DI-1

Dissolved Metals Analysis

Prep Method Method Prep Analyzed By DF Result RLUnits Analyte EPA 200.7² EPA 200.7 ¹ 09/15/10 09/21/10 JM 26700 50 ug/l 1

(1) Instrument QC Batch: MA993 (2) Prep QC Batch: MP2890



Report of Analysis

Page 1 of 1

Client Sample ID: DI-1 LYONS Lab Sample ID:

D17121-1F

Matrix:

AQ - Water Filtered

Date Sampled: 09/03/10

Date Received: 09/03/10

Percent Solids: n/a

Project:

Analyte

ECCV DI-1

General Chemistry

Result

RL

Units

DF

Analyzed

Method Ву

Silica, Dissolved a

57.1

0.11

mg/l

1

09/21/10 12:24 JM

SW846 6010B

(a) Calculated as: (Silicon * 2.139)









Section 4

1	100	100	
-1			
- 1			
- 1	RΙ		w
- 1	gr.		•
	ь.		-

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody

			CHAI	N O	FC	CUST	ГО	DY	7				1	11	7)	2)		PAG	GE _	<u>\</u> 0	F
ACCUTEST.		4036	Youngfield	Street.	Wheat :	Ridge, C	olora	do 80	033			FED-	X frack		<u>, ,</u>			Bothe C	rder Contid	ol 9		
Laboratories			303-425-602	1; 877-	737-452	I FAX:						Accul	est Quote	-				Accure	t Job #			
Client / Reporting Information	711124111111	the state of the s	Project		ition	com	排	15.00	物語	Million.	地位的		Re	quest	ed Ana	lysis (ace T	EST C	ODE sh	neel)	24.0	Matrix Codes
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HKI	Street	CV	0+-1	THE COURT	Bà cstadi	nate in	ana.	(to i all	ici/me	KM to 1	ettestad	3	3	1 1	1			3				DW - Drinking Water GW - Ground Water WW - Water
Street Address				_		en (lif cliffe					AN AND ADDRESS	7		2		*		GICHEB.				SW - Surface Water SO - Soil
City State Zip	City		State	Compan								í	4	2 0	20	9	+	60				SL-Sludge SED-Sedment
Project Contact E-mail	Project #			Street Ac	idreeu	une						ر ا الحراق الحراق	1	7	1	10		CaRB	ľ l			CN - OF
DAT OBRIEN	Client Purchase			CIN				State			Zio		1 0		1, 7	75		9				AIR - Air SOL - Other Solid
Phone #	CHANT PURCHASE	JIG67 V						Sugar			230		1 ~	، ا	\$\$	8			1			WP - Wipe FB-Field Blank
Sampler(g) Name(e) Phone &	Project Manager			Attention								707		{ E	-	7 9	+ ×	7				EB-Equipment Blank RB- Hinse Blank TB-Trip Blank
Post Otypen			Coraction			1		Numb	er of pr	eserved 1	Bottles	_ F	1 7	3	* C	20	da	3	1 1			- D. Lish Chank
Accusers				Sampled				NIOH	HRSO4	NONE DI Water	MEDH	770		2. 4	;	is is	Redax	N. Hrate				
Sample + Field ID / Point of Collection	MEOH/DI VINI F	Date	Time	by	Matrix	# of balles	오	2 2	월 :	DI WA	3 2		_) 3	2	1	_	_ <		\perp		LAB USE ONLY
DI-1 LYONS		9-3-10	16:15	Pos	W	3	H	+	\vdash		+	7	K	ント	V	7	\leq	Y	-			01
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D17121: Chain of Custody

Page 1 of 1









Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries



တ

BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2890 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

09/15/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	7	10		
Antimony	30	1.7	1.4		
Arsenic	25	2.8	3.6		
Barium	10	. 14	.46	0.0	<10
Beryllium	10	1.4	. 57		
Boron	50	3.5	1.4		
Cadmium	10	. 22	. 46		
Calcium	400	17	51	12.3	<400
Chromium	10	.27	.18		
Cobalt	5.0	. 48	. 4		
Copper	5.0	1.6	.76		٠
Iron	70	7.7	8	8.2	<70
Lead	50	1.3	1.2		
Lithium	2.0	.76	1.6		
Magnesium	200	5.8	13	5.8	<200
Manganese	5.0	.21	.3	0.30	<5.0
Molybdenum	10	.41	. 64		
Nickel	30	. 38	. 3		
Phosphorus	100	15	1.5		
Potassium	1000	380	140	146	<1000
Selenium	50	2.8	1.5		
Silicon	50	12	13	-0.20	<50
Silver	30	. 98	. 3		
Sodium	400	230	55	-130	<400
Strontium	5.0	.091	.22	0.10	<5.0
Thallium	10	3.1	2.3		
Tin	50	14	9.9		
Titanium	10	.098	. 1.5		
Uranium	50	2.2	2.5		
Vanadium	10	.27	.25		
Zinc	30	. 76	3.5		

Associated samples MP2890: D17121-1, D17121-1F



C)

BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2890 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV D1-1

QC Batch ID: MP2890 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

09/15/10

Metal	D17116-1 Origina 1		Spikelot MPICPALL		QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	175	2170	2000	99.8	70-130
Beryllium					
Boron					
Cadmium					
Calcium	312000	337000	25000	100.0	70-130
Chromium	anr				
Cobalt					
Copper	anr				
Iron	18.8	5050	5000	100.6	70-130
Lead					
Lithium					
Magnesium	46400	71700	25000	101.2	70-130
Manganese	268	741	500	94.6	70-130
Molybdenum					
Nickel					
Phosphorus					
Potassium	20800	47100	25000	105.2	70-130
Selenium					
Silicon	30000	32100	1000	170.0(a)	70-130
Silver					
Sodium	192000	227000	25000	108.0	70-130
Strontium	2450	2980	500	106.0	70-130
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					
Associated sam	mples MP28	90: D1712	21-1, D171	21-1F	



5.1.2

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2890 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2890 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

09/15/10

Metal	D17116-1 Original		Spikelot MPICPALI		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	175	2130	2000	97.8	1.9	20
Beryllium						
Boron						
Cadmium						
Calcium	312000	332000	25000	80.0	1.5	20
Chromium	anr					
Cobalt						
Copper	anr					
Iron	18.8	4950	5000	98.6	2.0	20
Lead						
Lithium						
Magnesium	46400	70100	25000	96.0	1.8	20
Manganese	268	737	500	93.8	0.5	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	20800	46200	25000	101,6	1.9	20
Selenium						
Silicon	30000	32100	1000	170.0(a)	0.0	20
Silver						
Sodium	192000	223000	25000	92.0	1.8	20
Strontium	2450	2930	500	96.0	1.7	20
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						
Associated sa	mples MP2	890: D171	21-1, D17	121-1F		
Results < IDL (*) Outside o	are show: f QC limi	n as zero ts	for calc	ulation pu	rposes	

51.2

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2890 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

QC Batch ID: MP2890 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

09/15/10

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits		 	 	
Aluminum								
Antimony						•		
Arsenic	anr							
Barium	1920	2000	96.0	85-115				
Beryllium								
Boron								
Cadmium								
Calcium	25100	25000	100.4	85-115				
Chromium	anr							
Cobalt								
Copper	anr							
Iron	4870	5000	97.4	85-115				
Lead								
Lithium								
Magnesium	24100	25000	96.4	85-115				
Manganese	475	500	95.0	85-115	1			
Molybdenum								
Nickel								
Phosphorus								
Potassium	24500	25000	98.0	85-115				
Selenium								
Silicon	952	1000	95.2	85-115				
Silver								
Sodium	25700	25000	102.8	85-115				
Strontium	500	5.00	100.0	85-115				
Thallium								
rin								
ritanium								
Jranium								
/anadium								
Zinc								
Associated sa	nalam MD?	מברות המפ	1-1 D17	121-1F				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV D1-1

QC Batch ID: MP2890 Matrix Type: AQUEOUS Methods: EPA 200.7 Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested











General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries



METHOD BLANK AND SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Re cov	QC Limits
Alkalinity, Bicarbonate as CaC	GN6293	5,0	2.2	mg/l	100	101	100.7	90-110%
Alkalinity, Carbonate	GN6294	5.0	0.0	mg/l	100	101	100.7	80-120%
Bromide	GP2759/GN6329	0.20	0.0	mg/l	20	18.8	94.0	90-110%
Chloride	GP2726/GN6312	0.50	0.18	mg/l	20	21.1	105.5	90-110%
Chloride	GP2759/GN6329	0.50	0.0	mg/l	20	20.8	104.0	90-110%
Chloride	GP2800/GN6430	0.50	0.0	mg/l	20	18.4	92.0	90~110%
Fluoride	GP2800/GN6430	0.20	0.0	mg/l	10	9.08	90.8	90-110%
Nitrogen, Nitrate	GP2726/GN6312	0.045	0.0	mg/l	4.52	4.28	94.7	90-110%
Nitrogen, Nitrate	GP2759/GN6329	0.045	0.0	mg/l	4.52	4.24	93.8	90-110%
Nitrogen, Nitrate	GP2800/GN6430	0.045	0.0	mg/l	4.52	4.44	98.3	90-110%
Nitrogen, Nitrite	GP2726/GN6312	0.061	0.0	mg/l	6.09	6.08	99.8	90-110%
Nitrogen, Nitrite	GP2759/GN6329	0.061	0.0	mg/l	6.09	5.96	97.9	90-110%
Phosphate, Ortho	GP2759/GN6329	0.065	0.0	mg/l	9.78	9.39	96.0	90-110%
Solids, Total Dissolved	GN6244	10	0.0	mg/l	400	415	103.8	90-110%
Specific Conductivity	GP2746/GN6303	1.0	<1.0	umhos/cm	99.9	92.1	92.2	90-110%
Sulfate	GP2726/GN6312	0.50	0.0	mg/1 .	30	29.1	97.0	90-110%
Sulfate	GP2759/GN6329	0.50	0.0	mg/l	30	29.0	96.7	90-110%
Sulfate	GP2800/GN6430	0.50	0.0	mg/l	30	29.3	97.7	90-110%
Sulfide	GN6248	0.50	<0.50	mg/l	3.56	3.4	95.5	60-120%
Н	GN6265			su	8.00	8.00	100.0	99.3-100.79

Associated Samples:

Batch GN6244: D17121-1A
Batch GN6248: D17121-1
Batch GN6265: D17121-1
Batch GN6293: D17121-1
Batch GP2746: D17121-1
Batch GP2746: D17121-1
Batch GP2746: D17121-1
Batch GP2759: D17121-1
Batch GP2800: D17121-1
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN6244	D17050-2	mg/l	307	106	5.5	0-25%
Specific Conductivity	GP2746/GN6303	D17084-1	umhos/cm	1040	1050	0.9	0-20%
Sulfide	GN6248	D17080-1	mg/l	<0.50	<0.50	0.0	0-20%

Associated Samples: Batch GN6244: D17121-1A Batch GN6248: D17121-1 Batch GP2746: D17121-1 (*) Outside of QC limits



MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
GP2759/GN6329	D17263-7	mg/1	0.0	2.5	2.4	96.0	80-120%
GP2726/GN6312	D17031-1	mg/l	1.0	10	9.6	86.0	80-120%
GP2759/GN6329	D17263-7	mg/l	1.9	10	10.6	87.0	80-120%
GP2800/GN6430	D17246-1	mg/l	114	50	166	104.0	80-120%
GP2800/GN6430	D17246-1	mg/1	0.88	2.5	3.2	92.8	80-120%
GP2726/GN6312	D17031~1	mg/1	0.0091	0.565	0.55	95.7	80-120%
GP2759/GN6329	D17263-7	mg/l	0.096	0.565	0.62	92.7	80-1209
GP2800/GN6430	D17246-1	mg/l	0.0	0.565	0.51	90.3	80-1209
GP2726/GN6312	D17031-1	mg/1	0.0	0.305	0.29	95.2	80-1209
GP2759/GN6329	D17263-7	mg/l	0.0	0.305	0.28	92.0	80-120%
GP2759/GN6329	D17263-7	mg/l	0.0	0.815	0.74	90.8	80-120%
GP2726/GN6312	D17031-1	mg/l	40,4	50	91.3	101.8	80-1209
GP2759/GN6329	D17263-7	mg/l	7.3	10	16.8	95.0	80-1209
GP2800/GN6430	D17246-1	mg/l	113	50	164	102.0	80-1209
GN6248	D17084-1	mq/l	0.90	3.56	3.9	84.3	60-1209
	GP2759/GN6329 GP2726/GN6312 GP2759/GN6329 GP2800/GN6430 GP2800/GN6430 GP2726/GN6312 GP2759/GN6329 GP2800/GN6430 GP2726/GN6312 GP2759/GN6329 GP2759/GN6329 GP2759/GN6329 GP2759/GN6329 GP2759/GN6312	Batch ID Sample GP2759/GN6329 D17263-7 GP2726/GN6312 D17031-1 GP2759/GN6329 D17263-7 GP2800/GN6430 D17246-1 GP2726/GN6312 D17031-1 GP2726/GN6312 D17031-1 GP2759/GN6329 D17263-7 GP2800/GN6430 D17246-1 GP2759/GN6312 D17031-1 GP2759/GN6329 D17263-7	Batch ID Sample Units GP2759/GN6329 D17263-7 mg/l GP2726/GN6312 D17031-1 mg/l GP2759/GN6329 D17263-7 mg/l GP2800/GN6430 D17246-1 mg/l GP276/GN6312 D17031-1 mg/l GP276/GN6312 D17031-1 mg/l GP2759/GN6329 D17263-7 mg/l GP2800/GN6430 D17246-1 mg/l GP2759/GN6312 D17031-1 mg/l GP2759/GN6329 D17263-7 mg/l	Batch ID Sample Units Result GP2759/GN6329 D17263-7 mg/l 0.0 GP2726/GN6312 D17031-1 mg/l 1.0 GP2759/GN6329 D17263-7 mg/l 1.9 GP2800/GN6430 D17246-1 mg/l 0.88 GP2726/GN6312 D17031-1 mg/l 0.0991 GP2759/GN6329 D17263-7 mg/l 0.0996 GP2800/GN6430 D17246-1 mg/l 0.0996 GP2800/GN6430 D17246-1 mg/l 0.0 GP2759/GN6329 D17263-7 mg/l 0.0 GP2759/GN6312 D17031-1 mg/l 0.0 GP2759/GN6329 D17263-7 mg/l 7.3 GP2800/GN6430 D17246-1 mg/l 13	Batch ID Sample Units Result Amount GP2759/GN6329 D17263-7 mg/l 0.0 2.5 GP2759/GN6312 D17031-1 mg/l 1.0 10 GP2759/GN6329 D17263-7 mg/l 1.9 10 GP2800/GN6430 D17246-1 mg/l 0.88 2.5 GP2726/GN6312 D17031-1 mg/l 0.0091 0.565 GP2759/GN6329 D17263-7 mg/l 0.096 0.565 GP2800/GN6430 D17246-1 mg/l 0.0 0.565 GP2726/GN6312 D17031-1 mg/l 0.0 0.305 GP2759/GN6329 D17263-7 mg/l 0.0 0.305 GP2759/GN6329 D17263-7 mg/l 0.0 0.815 GP2759/GN6329 D17263-7 mg/l 40.4 50 GP2759/GN6329 D17263-7 mg/l 40.4 50 GP2759/GN6329 D17263-7 mg/l 40.4 50 GP2759/GN6329 D17263-7	Batch ID Sample Units Result Amount Result GP2759/GN6329 D17263-7 mg/l 0.0 2.5 2.4 GP2759/GN6312 D17031-1 mg/l 1.0 10 9.6 GP2800/GN6430 D17246-1 mg/l 114 50 166 GP2800/GN6430 D17246-1 mg/l 0.88 2.5 3.2 GP2726/GN6312 D17031-1 mg/l 0.0091 0.565 0.55 GP2759/GN6329 D17263-7 mg/l 0.096 0.565 0.62 GP2800/GN6430 D17246-1 mg/l 0.0 0.565 0.51 GP2759/GN6312 D17031-1 mg/l 0.0 0.565 0.51 GP2759/GN6312 D17031-1 mg/l 0.0 0.305 0.29 GP2759/GN6329 D17263-7 mg/l 0.0 0.305 0.28 GP2759/GN6329 D17263-7 mg/l 0.0 0.815 0.74 GP2726/GN6312 D17031-1 mg/l 40.4 50 91.3 GP2759/GN6329 D17263-7 mg/l 7.3 10 16.8 Batch ID Sample Units Result Amount Result *Rec GP2759/GN6329 D17263-7 mg/l 0.0 2.5 2.4 96.0 GP2759/GN6312 D17031-1 mg/l 1.0 10 9.6 86.0 GP2759/GN6329 D17263-7 mg/l 1.9 10 10.6 87.0 GP2800/GN6430 D17246-1 mg/l 114 50 166 104.0 GP2800/GN6430 D17246-1 mg/l 0.88 2.5 3.2 92.8 GP2759/GN6312 D17031-1 mg/l 0.0091 0.565 0.55 95.7 GP2800/GN6430 D17246-1 mg/l 0.096 0.565 0.62 92.7 GP2800/GN6430 D17246-1 mg/l 0.0 0.565 0.51 90.3 GP2759/GN6312 D17031-1 mg/l 0.0 0.305 0.29 95.2 GP2759/GN6329 D17263-7 mg/l 0.0 0.305 0.28 92.0	

Associated Samples:
Batch GN6248: D17121-1
Batch GP2726: D17121-1
Batch GP2759: D17121-1
Batch GP2800: D17121-1
(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D17121 Account: HYDRCOG - Hydrokinetics Project: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP2759/GN6329	D17263-7	mg/1	0.0	2.5	2.5	4.1	20%
Chloride	GP2726/GN6312	D17031-1	mg/l	1.0	10	9.5	1.0	20%
Chloride	GP2759/GN6329	D17263-7	mg/l	1.9	10	11.0	3.7	20%
Chloride	GP2800/GN6430	D17246-1	mg/l	114	50	166	0.0	20%
Fluoride	GP2800/GN6430	D17246-1	mg/1	0.88	2.5	3.2	0.0	20%
Vitrogen, Nitrate	GP2726/GN6312	D17031-1	mg/l	0.0091	0.565	0.54	1.8	20%
Nitrogen, Nitrate	GP2759/GN6329	D17263-7	mg/1	0.096	0.565	0.65	4.7	20%
Vitrogen, Nitrate	GP2800/GN6430	D17246-1	mg/l	0.0	0.565	0.52	1.9	20%
Vitrogen, Nitrite	GP2726/GN6312	D17031-1	mg/l	0.0	0.305	0.30	3.4	20%
Vitrogen, Nitrite	GP2759/GN6329	D17263-7	mg/1	0.0	0.305	0.29	3.5	20%
Phosphate, Ortho	GP2759/GN6329	D17263-7	mg/1	0.0	0.815	0.76	2.7	20%
Sulfate	GP2726/GN6312	D17031-1	mg/1	40.4	50	89.8	1.7	20%
Sulfate	GP2759/GN6329	D17263-7	mq/1	7.3	10	17.4	3.5	20%
Sulfate	GP2800/GN6430	D17246-1	mg/l	113	50	164	0.0	20%

Associated Samples: Batch GP2726: D17121-1 Batch GP2759: D17121-1 Batch GP2800: D17121-1 (*) Outside of OC limits

(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits









Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

• Chain of Custody



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CHAIN OF CUSTODY

4036 Youngfield St., Wheat Ridge, CO 80033 303-425-6021 FAX: 303-425-6854

Accutest Job #:	D17121	
Accutest Quote #:		
AMS P.O. #:		
Project No :		

	Client	nformation		Subcontract Laboratory Information					Analytical Information								
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Send Report to:		Tiffany Ph		Contact:											1		
Any questions co		Amanda K		Sample Management							1	1		1			
Phone/Fax #:	(303) 425	-6021; (303)	425-6854	Phone: (508) 481-6200													
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D17121: Chain of Custody

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Accutest Labs of New England, Inc.







General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries



DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: D17121
Account: ALMS - Accutest Mountain States
Project: HYDRCOG: ECCV DI-1

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits	
Redox Potential Vs H2	GN32793	D17121-1	mν	259	260	0.4	0-%	

Associated Samples: Batch GN32793: D17121-1 (*) Outside of QC limits